Draft Existing Conditions and Planned Transportation Improvements Report

Prepared for:

Maricopa Association of Governments

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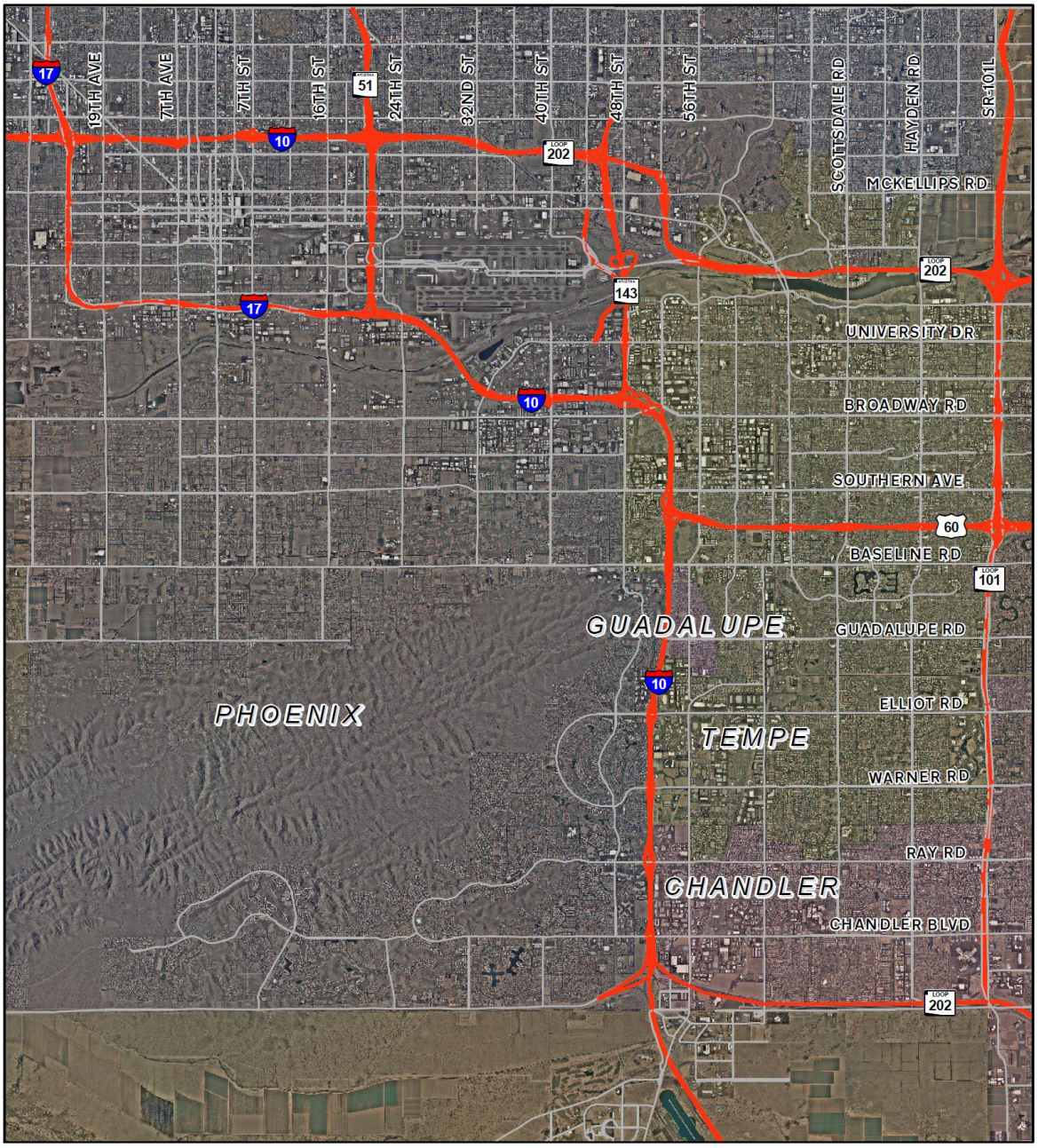
1.0 INTRODUCTION

The Southeast Corridor Major Investment Study (SE MIS) will identify area compatible transportation elements designed to improve overall mobility within the Southeast Corridor and adjacent area. This initial background report documents a review of recently completed relevant studies and plans, provides a summary level inventory of existing and planned highway, arterial roadway, and public transportation investments, and identifies general travel demand patterns.

Study Area

The Southeast Corridor Major Investment Study Area is bounded by Interstate 10 (Papago Freeway) and SR-202L (Red Mountain Freeway) on the north, SR-101L (Price Freeway) on the east, the Gila River Indian Community border on the south, and Interstate 17 (Black Canyon Freeway) and the 23rd Avenue alignment on the west. **Figure 1** illustrates the general study area.

Figure 1: Study Area



Maricopa Association of Governments Southeast Corridor MIS **Base Map**	**Legend** Major Roads Highways 0 1 2 Miles

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2.0 REVIEW OF EXISTING PLANS AND STUDIES

The Maricopa Association of Governments has recently completed or updated three significant regional transportation related plans or studies that are specifically relevant to the Southeast Corridor Major Investment Study. These planning efforts include the MAG Regional Transportation Plan (RTP), MAG Regional Transit Framework (RTF), and MAG Commuter Rail System Study (CRSS). Each of these plans and studies, which were developed in coordination with other local and regional planning efforts, include the most complete documentation of the area's planned regional transportation investments. A summary of the planned regional transportation improvement projects, including planned illustrative projects\corridors, identified in the study area are documented in Section 2.1.

In addition to a review of existing transportation related studies and plans, relevant community general plans or master plans were reviewed to identify any potential significant changes in community land-use or circulation plans. The most recently adopted plans from the cities of Chandler, Guadalupe, Phoenix, and Tempe were reviewed. A summary of relevant information from each community is provided in Section 2.2

2.1 Transportation Plans

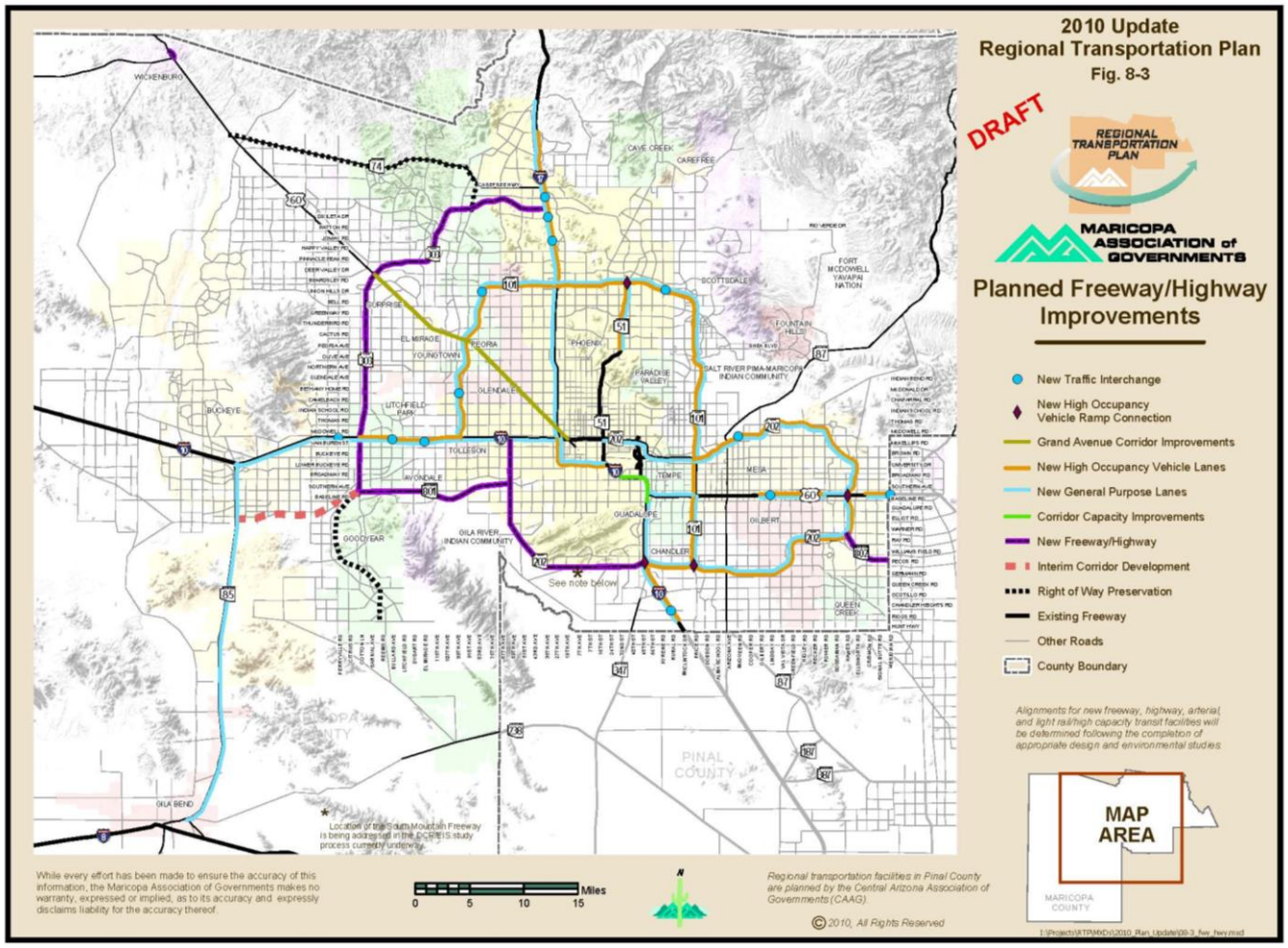
2.1.1 Regional Transportation Plan

The *MAG Draft RTP – 2010 Update* is a regional plan that outlines transportation improvements in Maricopa County through Fiscal Year 2031. The RTP was initially developed in 2003; however, the current edition of the plan was updated in June 2010. The RTP is organized into three sections: planning process, transportation modes, and system management and operations. The planning process section includes the approach to developing the RTP, a description of goals and objectives, a review of existing and future conditions, the public involvement process, and the role of government agencies in developing the plan. The transportation modes section includes a financial plan, an overview of each of the region's planned transportation modes as well as a funding and expenditure summary for each, an overview of the Transportation Enhancements Program, and the extended regional transportation planning outlook. The system management and operations section identifies various measures that are in place to improve the performance of the transit system.

For purposes of this background report, three specific elements of the RTP were reviewed to identify planned and illustrative projects within the Southeast Corridor MIS study area. These elements include: freeways and highways, arterial streets, and public transportation.

Freeways and Highways
Within the study area, the RTP identifies multiple planned freeway/highway improvements. This includes the new SR-202L/South Mountain Freeway and corridor capacity improvements along I-10, from the bridge over the Salt River through the I-10/US-60 system interchange. New HOV ramp connections are planned for the I-10/SR-202L and SR-101L/SR-202L system traffic interchanges. Additional general purpose and HOV lanes are planned along existing facilities. **Figure 2** illustrates the planned freeway/highway improvements within the region and Study Area.

Figure 2: Planned Freeway/Highway Improvements



Source: MAG Regional Transit Framework, 2010

Arterial Streets

Five regionally funded arterial street projects are located within the study area. Four projects are intersection improvements, all of which are located within the City of Chandler. These include the intersection of Chandler Boulevard and Kyrene Road, and the intersections of Ray Road with Kyrene Road, McClintock Road, and Rural Road. The fifth project, Avenida Rio Salado between 51st Avenue and 7th Street, is a new/improved arterial within the City of Phoenix.

Illustrative Roadway Projects

One illustrative roadway project is located within the study area, and involves improving I-10 to a local/express lane configuration between the I-10/SR-51/SR-202L traffic interchange and 32nd Street. This project, which was originally part of the 2003 plan, is no longer included in the current planning horizon.

Public Transportation

Within the SE Corridor study area, the RTP identifies several high capacity transit and illustrative corridors. Three high capacity transit (HCT) corridors\projects were identified in the RTP. These include the Tempe South, Phoenix West, and Phoenix Sky Train (Phase 1). The RTP also identifies three Arterial Bus Rapid Transit (BRT) corridors, which include Scottsdale/Rural Arterial BRT, South Central Avenue Arterial BRT, and Chandler Boulevard Arterial BRT. **Table 1** identifies the HCT and Arterial BRT corridors and the planned initial service operations year for each.

Table 1: Planned HCT and Arterial BRT Corridors

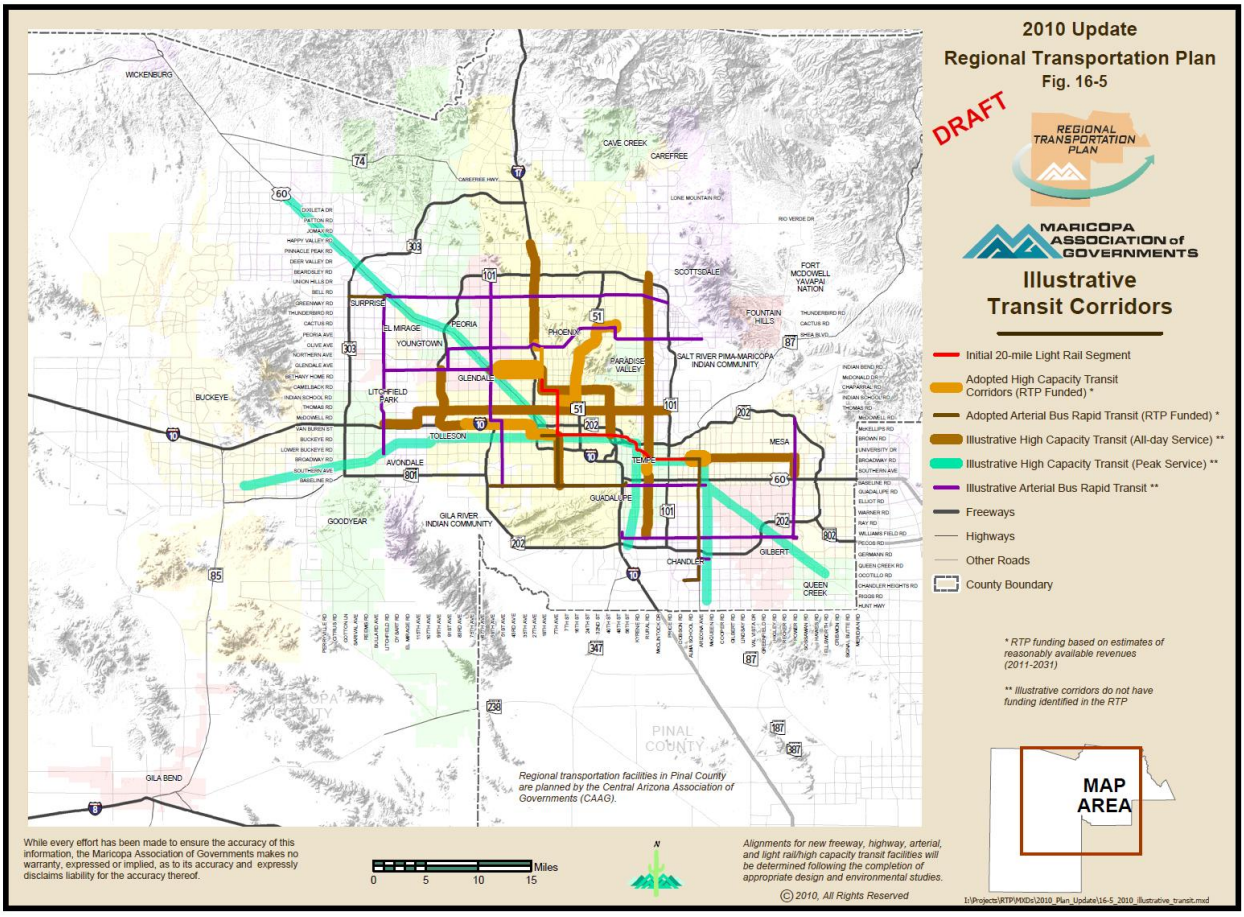
Corridor	Fiscal Year of Operation
High Capacity Transit	
Tempe South	2015
Phoenix West	2021
PHX Sky Train – Stage 1	2013
Arterial BRT	
Scottsdale/Rural Arterial BRT	2016
South Central Avenue Arterial BRT	Beyond 2026
Chandler Boulevard Arterial BRT	Beyond 2026

Source: MAG RTP, 2010 Update

Illustrative Public Transportation Projects

The RTP 2010 Update also includes illustrative transit corridors/projects which identify potential corridors or improvements that may be included in future RTP updates. Three illustrative HCT corridors are identified within the study area. These include two potential HCT all day service corridors along Scottsdale/Rural Road and Central Avenue (south of Jefferson Street) and one HCT peak period service corridor near the Tempe Kyrene Branch freight rail line. **Figure 3** identifies the illustrative transit corridors within the region.

Figure 3: Illustrative Transit Corridors

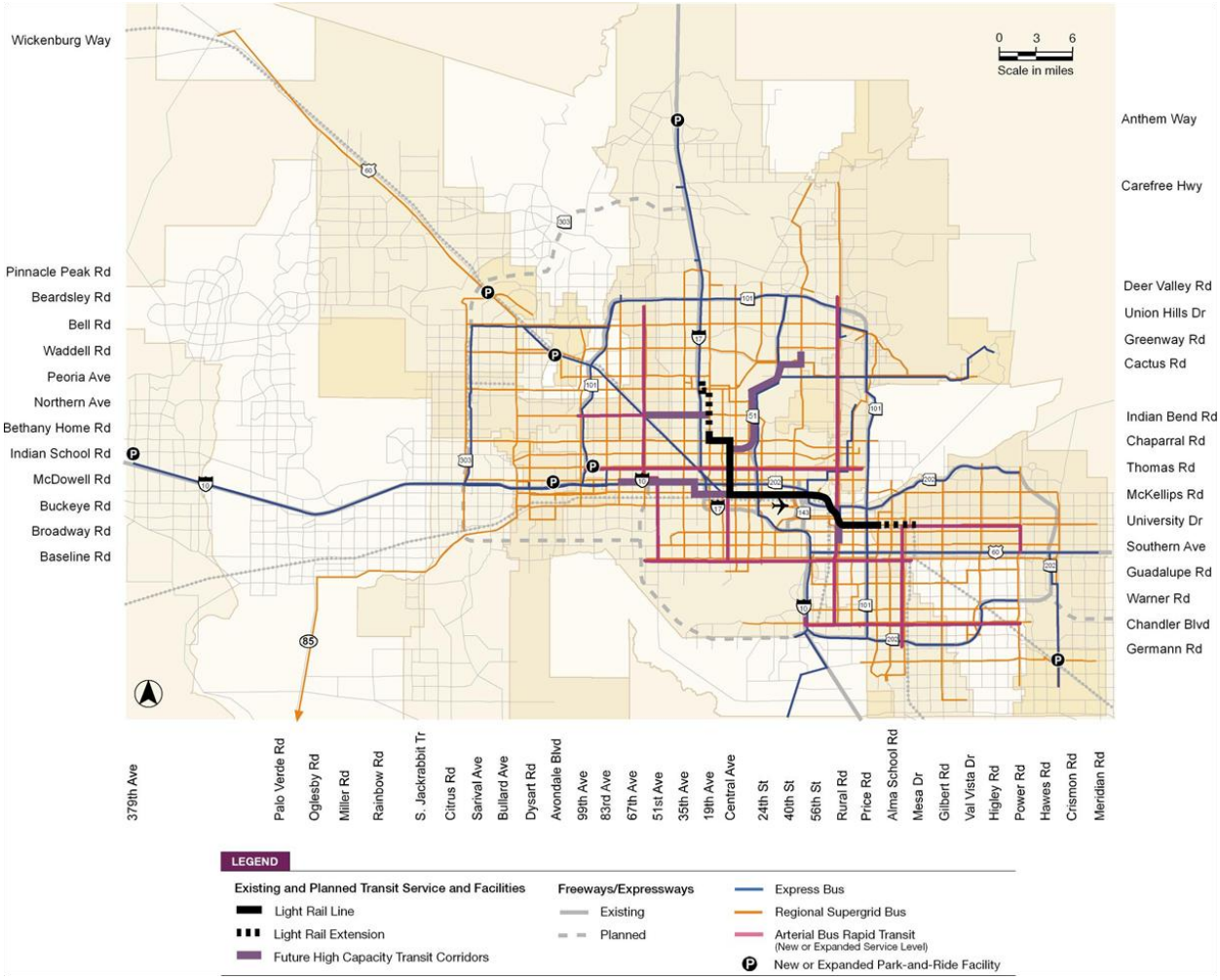


Source: MAG Regional Transit Framework, 2010

2.1.2 Regional Transit Framework

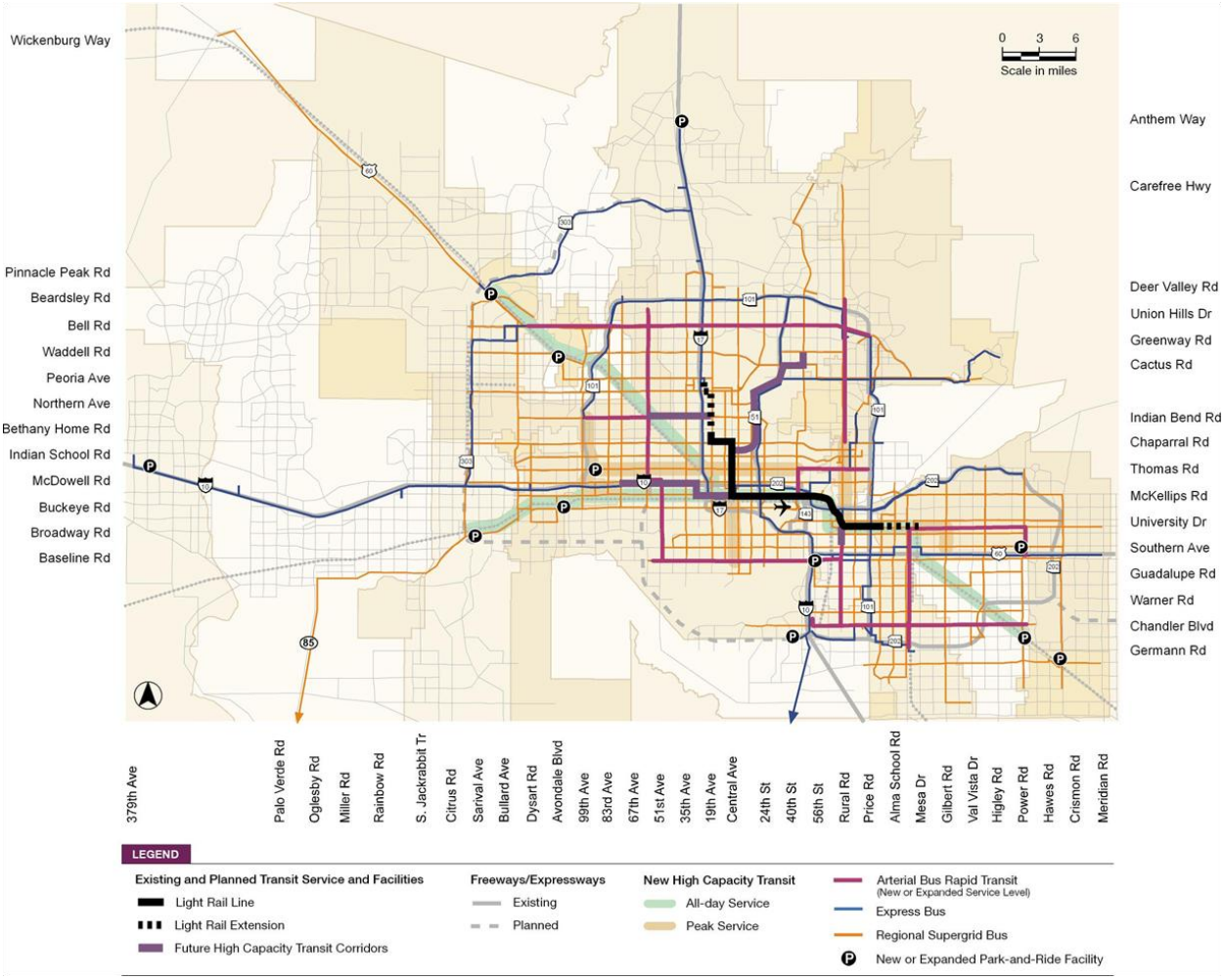
The *MAG Regional Transit Framework* (RTF) sought to understand the region's transit needs and deficiencies with the goal of identifying high-leverage transit investments that can attract a significant number of new passengers while improving transit service for existing patrons. The study developed three transit mobility scenarios which represent distinct alternatives that provide demand based solutions for addressing regional transit deficiencies and needs through different funding level assumptions. The three transit mobility scenario concepts are: Basic Mobility (Scenario I), Enhanced Mobility (Scenario II), and Transit Choice (Scenario III). The Basic Mobility Scenario contains new service or service enhancements (including capital investments) in corridors that were screened as some of the highest-priority corridors, with consideration given to regional transit system connectivity and functionality. The other two scenarios include additional transit investments not identified in the Basic Mobility scenario. With each scenario building on the previous, the mode or level of investment in a corridor may differ from one scenario to another. For example, a corridor designated for express bus service in one scenario may be designated as HCT Peak Period in a subsequent scenario. **Figures 4** though **6** depict the transit mobility scenarios.

Figure 4: Basic Mobility Scenario



Source: MAG Regional Transit Framework, 2010

Figure 5: Enhanced Mobility Scenario



Source: MAG Regional Transit Framework, 2010

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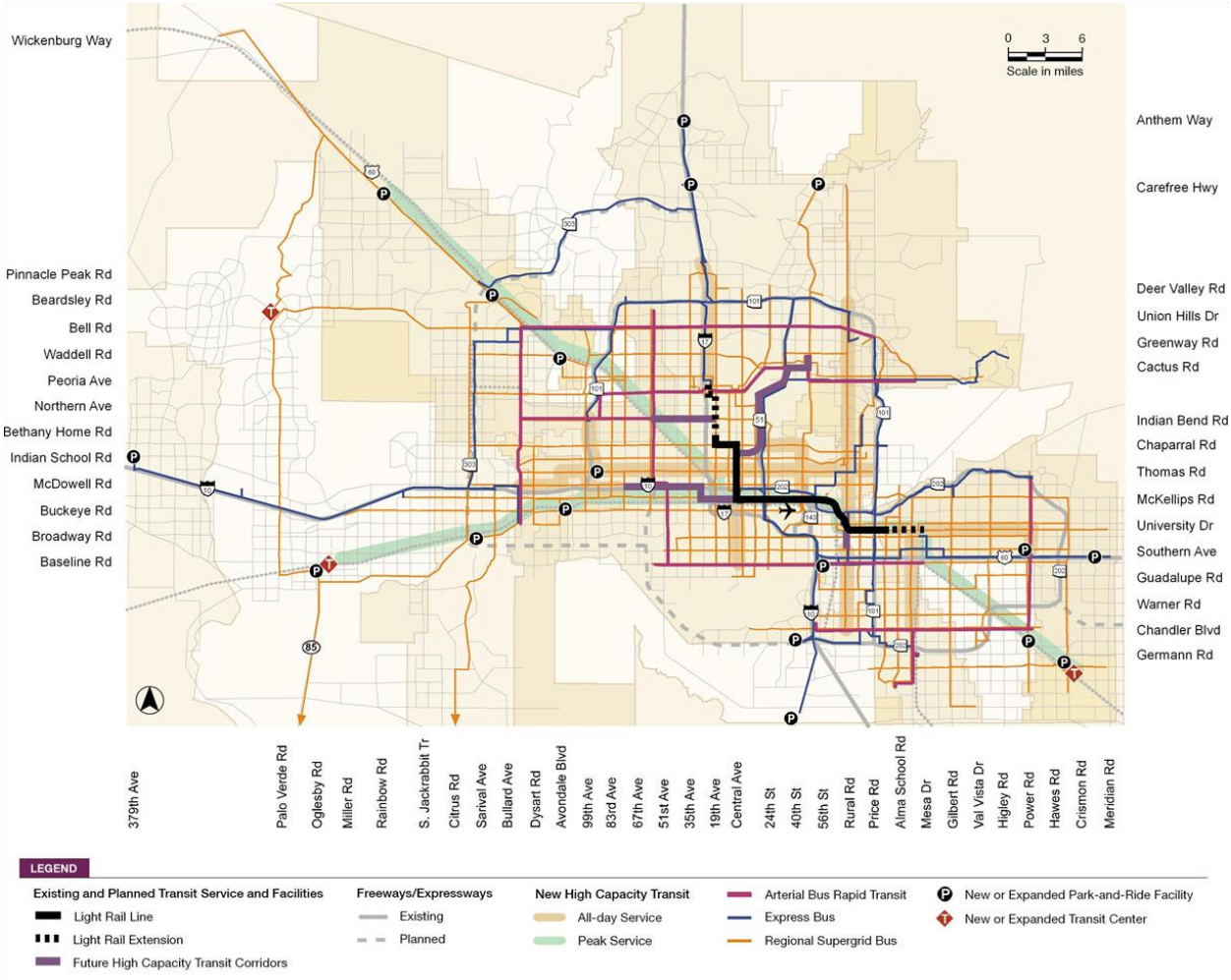
Figure 6: Transit Choice Scenario



Source: MAG Regional Transit Framework, 2010

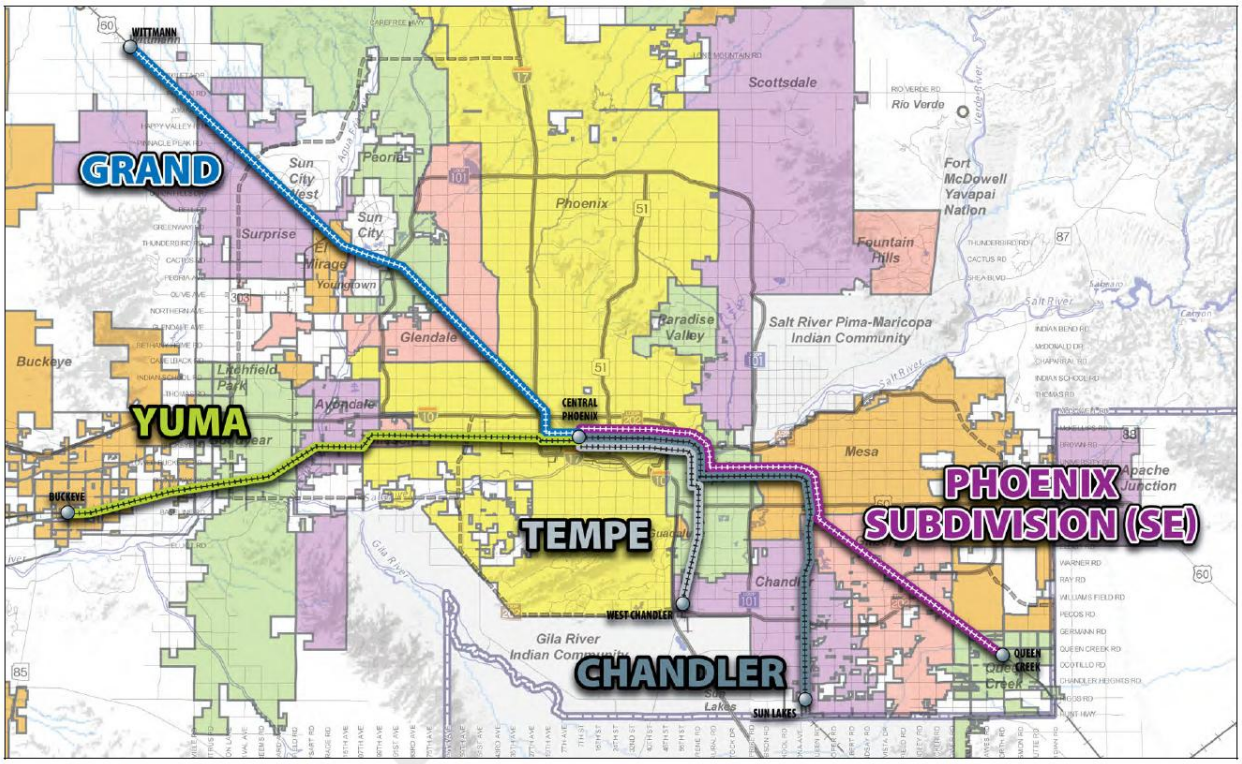
2.1.3 Commuter Rail System Study

The MAG Commuter Rail System Study (CRS) explored the viability of commuter service in the MAG region through an analysis of both stand-alone and interlined alternatives that would result in an optimized commuter rail network. In addition, this study also outlined steps for implementing commuter rail service including coordination with railroads, governance of the system, and funding. This study analyzed five existing rail corridors within the MAG region: Grand Avenue (BNSF), Yuma West (UPRR), Southeast (UPRR), Tempe (UPRR), and Chandler (UPRR). **Figure 7** illustrates the general location of the of the five rail corridors analyzed as part of the MAG CRS.

The Tempe Corridor identified for analysis is located entirely within the MAG Southeast Corridor study area, operating along the existing UPRR (including the Kyrene Branch). The study corridor is approximately 18 miles in length, serving the area between downtown Phoenix and around the vicinity of I-10/SR-202L. In terms of what commuter rail line to implement first, the study recommended that this corridor be apart of the Start-Up Scenario 1C, which was one of two corridors that could be

implemented as an alternative to the Southeast Corridor, if right-of-way constraints were to limit its implementation, or if plans suggested that this corridor would be viable for inter-city passenger rail service between Phoenix and Tucson. The proposed start-up alignment, which is shorter than the full corridor studied, would operate along the existing UPRR with 5 stations and begin at I-10/SR-202L and end around Airport/38th Street. Transit riders requiring access to downtown Phoenix could transfer to light rail at the Airport/38th Street station location.

Figure 7: MAG Commuter Rail Corridors



Source: URS Corp., 2009.

Source: MAG Commuter Rail System Study, 2010

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2.2 Community General Plans

2.2.1 Chandler General Plan 2008

The Chandler General Plan 2008 was adopted on November 4, 2008. The plan is a tool used to aide in the development of the city. Future land uses proposed within the SE Corridor study area are primarily non-residential (i.e. knowledge-intensive centers, industrial, business parks) and commercial (i.e. malls, large single-use retail development, and other major commercial developments). Of particular relevance to the SE Corridor Study, there are two areas along I-10 designated as *Growth Expansion Nodes.* The plan identifies these areas as "compact, business accommodation growth areas". The Circulation Element of the plan does not identify any significant future circulation changes within the SE Corridor study area.

2.2.2 Guadalupe Master Plan 1992-2010

The Guadalupe Master Plan, adopted in November 1992, presents the community's existing conditions and outlines the goals, needs, and aspirations of the town as they relate to achieving the community's overall vision. The future land use within the study area is comprised of mainly residential, commercial, and commercial mixed uses. Park/open space is primarily identified along the I-10 corridor, south of Guadalupe Road. The Circulation section of the plan does not identify any significant changes in the community's circulation plan.

2.2.3 Phoenix General Plan 2002

The Phoenix General Plan 2002 (adopted on November 7, 2001) outlines the City's goals, policies, and recommendations to aide in future growth. The City of Phoenix is organized into 14 Urban Villages, with four located within the study area including: Encanto, Central City, South Mountain, and Ahwatukee Foothills. The projected land use for these four areas within or adjacent to the Interstate 10 corridor is primarily commercial (including business parks) and industrial with pockets of mixed-use and low to medium residential development. The study area also includes Sky Harbor International Airport which is adjacent to I-10 and surrounded by commercial uses and business park areas. Planned transportation improvements that may be relevant to the SE corridor study include the construction of the South Mountain Parkway as well as improving overall circulation within each urban village.

2.2.4 City of Tempe General Plan 2030

The City of Tempe General Plan 2030, adopted on December 4, 2003, provides a vision for the City of Tempe's future development. Adjacent to the Interstate 10 corridor, the projected land uses within the City of Tempe are mainly comprised of industrial and commercial uses with some pockets of public open space, residential, and mixed-use. The General Plan does not identify any significant changes to the current transportation system within the study area.

3.0 EXISTING AND PLANNED ROADWAY FACILITIES

For the purpose of this Study, the sources of information for the existing and planned freeway/highway and arterial street systems are the MAG 2010 Update to the Regional Transportation Plan (RTP) and the 2010 and 2031 MAG Travel Demand Models (TDM).

3.1 Existing Roadway Facilities

3.1.1 Freeways and Highways

The existing freeway/highway system in the Southeast Corridor Study Area (study area) consists of facilities constructed, maintained, and operated by the Arizona Department of Transportation (ADOT). These facilities include:

I-10 Maricopa Freeway	**I-17** Black Canyon Freeway	**US-60** Superstition Freeway	**SR-51** Piestawa Freeway
SR-101L Price Freeway	**SR-202L** Red Mountain Freeway	**SR-202L** Santan Freeway	**SR-143** Hohokam Expressway

Two Interstate highways are located with the study area. I-10 is the predominant freeway/highway facility that spans the country and bisects the study area. I-17 is located in the northern portion of the Study Area, and is a north-south connection between I-10 and I-40. US-60 extends beyond the region and varies in functional classification. Within the study area, it is a multiple lane freeway. The remaining freeways/highways within the study area are regional routes. **Figure 8** illustrates the existing freeway/highway system, and **Figure 9** depicts the number of existing freeway/highway lanes.

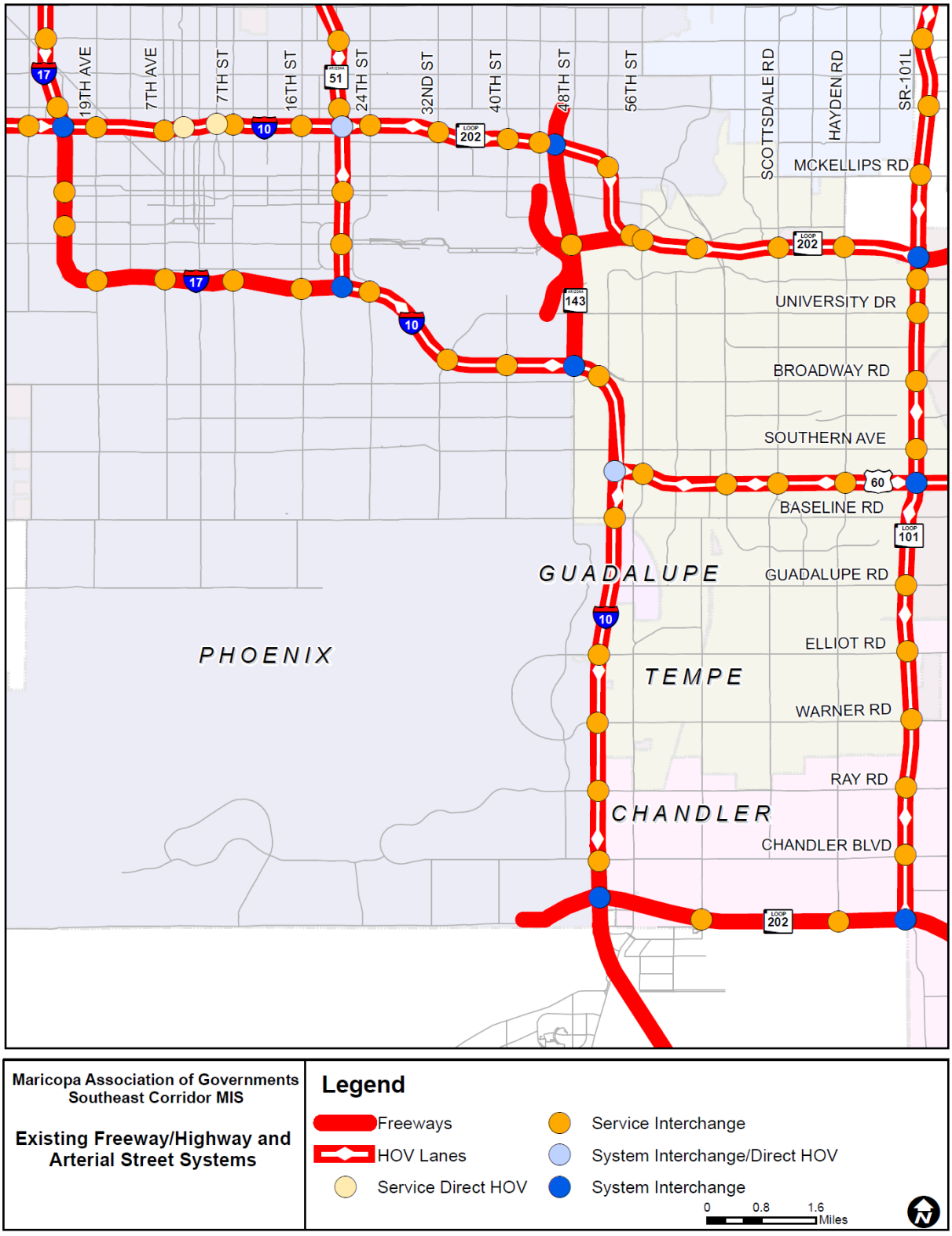
High Occupancy Vehicle Lanes

The study area has a developed High Occupancy Vehicle (HOV) lane system. HOV facilities are located on several of the freeway/highways within the study area. Current HOV facilities consist of one-lane for each direction of travel. The location of existing HOV facilities are illustrated on **Figure 8**.

Traffic Interchanges

Traffic interchanges (TI) provides access between freeways/highways (system TI) and between freeways/highways and the arterial street system (service TI). Service TI spacing within the Study Area varies; however, it is typically one mile corresponding with the one-mile arterial street grid. **Figure 8** illustrates the location of existing system and service TIs, including TIs that provide direct HOV connectivity.

Figure 8: Existing Freeway/Highway and Arterial Street Systems



Source: HDR Engineering Inc., 2010

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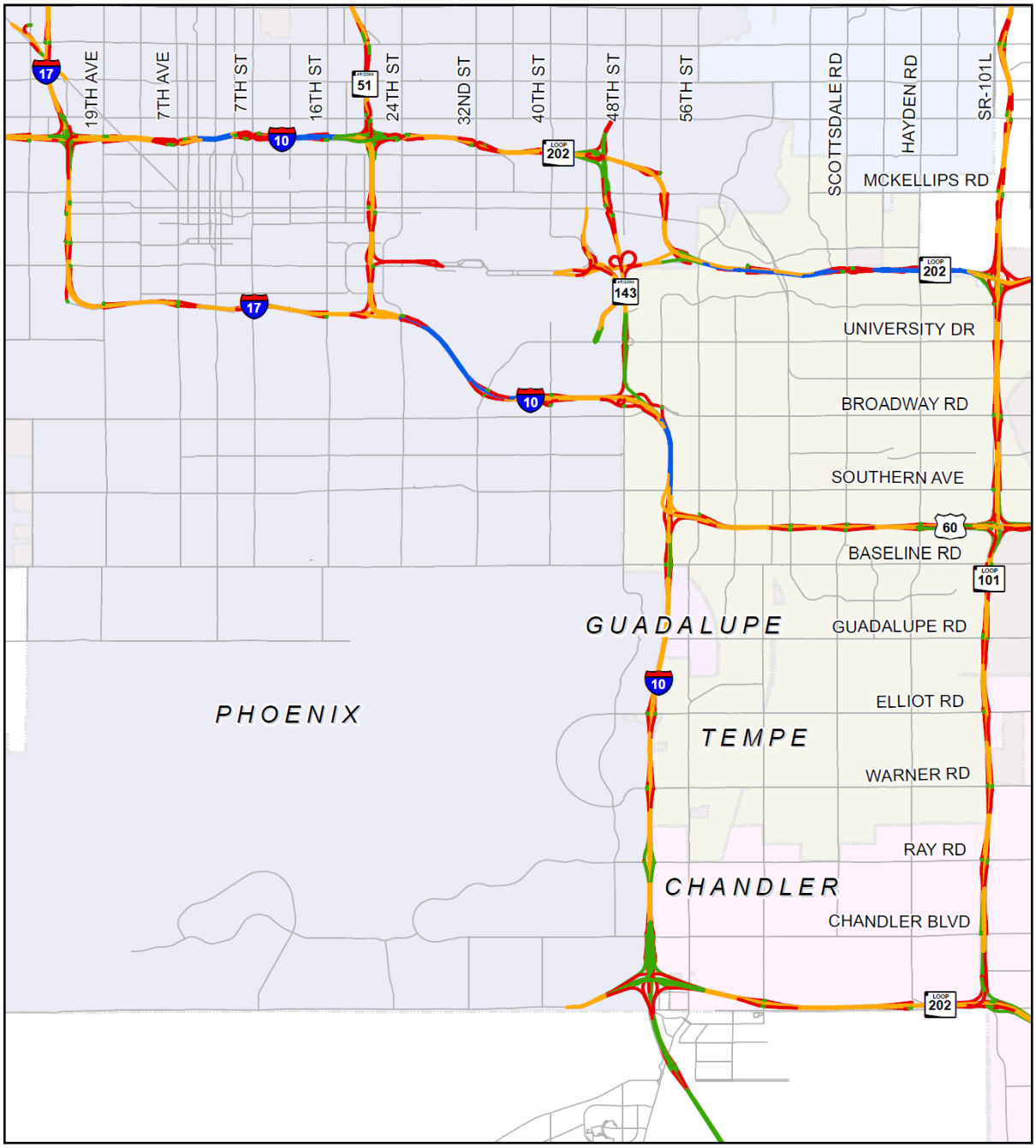
Figure 9: 2010 Freeway/Highway System Number of Lanes



Source: MAG Travel Demand Model, July 2010

3.1.2 Arterial Streets

The existing arterial street system extends throughout the study area, except for the Phoenix South Mountain Park in the southwest portion of the study area. The arterial street system consists of the one-mile grid that is typical for the metro area, and is oriented north-south/east-west. The typical number of through lanes for arterials within the Study Area ranges from four to six lanes. **Figure 8** illustrates the existing arterial street system. **Figure 10** depicts the total number of through lanes of the 2010 arterial street system, based on the conditions defined in the 2010 MAG Travel Demand Model.

3.2 Planned Roadway Facilities

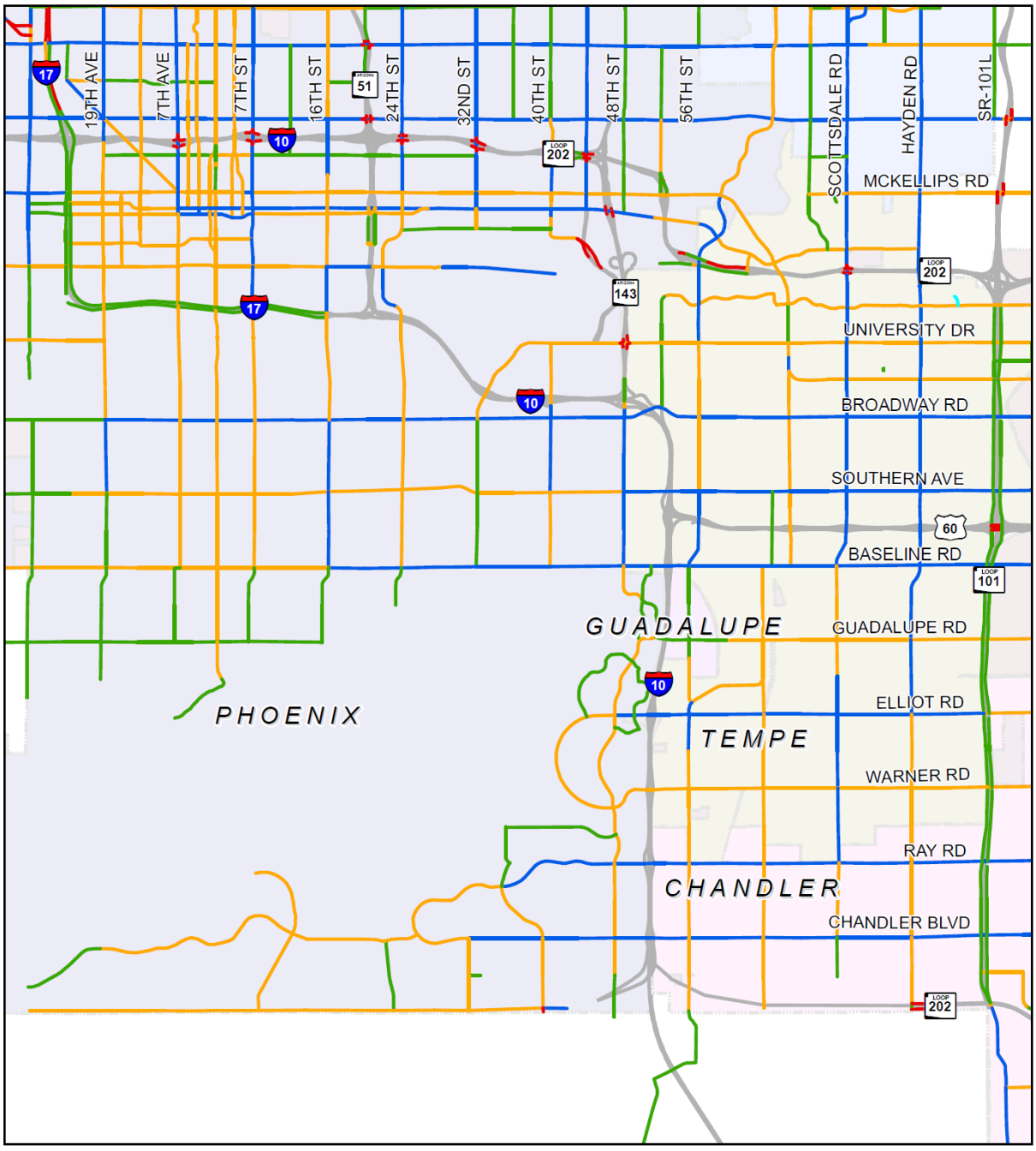
3.2.1 Freeways and Highways

The RTP identifies substantial freeway/highway improvements in the study area; which includes varying levels of improvement on nearly every freeway/highway. This includes corridor capacity improvements along I-10 and a new South Mountain Freeway along the southern border of the Study Area. New HOV ramp connections are planned for the I-10/SR-202L (Pecos Stack) and SR-101L/SR-202L system TIs. Additional general purpose and HOV lanes are planned along existing facilities. **Figure 11** illustrates the planned freeway/highway improvements within the region and study area identified in the RTP, while **Figure 12** illustrates the planned number of freeway/highway lanes indicated in the RTP.

Improvements to I-10 include reconfiguring the current facility to a local/express lane arrangement. The current RTP funds these improvements from 32nd Street to the I-10/SR-202L TI (Pecos Stack TI). This improvement provides additional general purpose and HOV lanes for through traffic. HOV lanes throughout the Study Area are typically one lane in each direction; however, will be provided in the same direction from the I-10/-17 TI (The Split) to the I-10/US-60 TI. New multiple lane collector-distributor(C-D) roads will be provided to address local access to the arterial streets over the same approximate length. The South Mountain Freeway is a new facility. It is an extension of SR-202L west from the Pecos Stack TI and will span along the southern border of the study area, and then turn north outside of the Study Area and connect to I-10, near 59th Avenue.

Also programmed in the RTP within the Study Area are additional general purpose and HOV lanes along I-17, from the I-10/I-17 TI (Stack TI) on the northwest corner of downtown Phoenix, to the I-10/-17 TI (The Split) on the southeast corner of downtown Phoenix. Further, additional general purpose and HOV facilities, including including direct ramp connections and additional lanes, are programmed for the SR-202L (Santan Freeway), from I-10 to east of the study area.

Figure 10: 2010 Arterial System Number of Through Lanes



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Southeast Corridor MIS

2010 Arterial Street System Number of Lanes

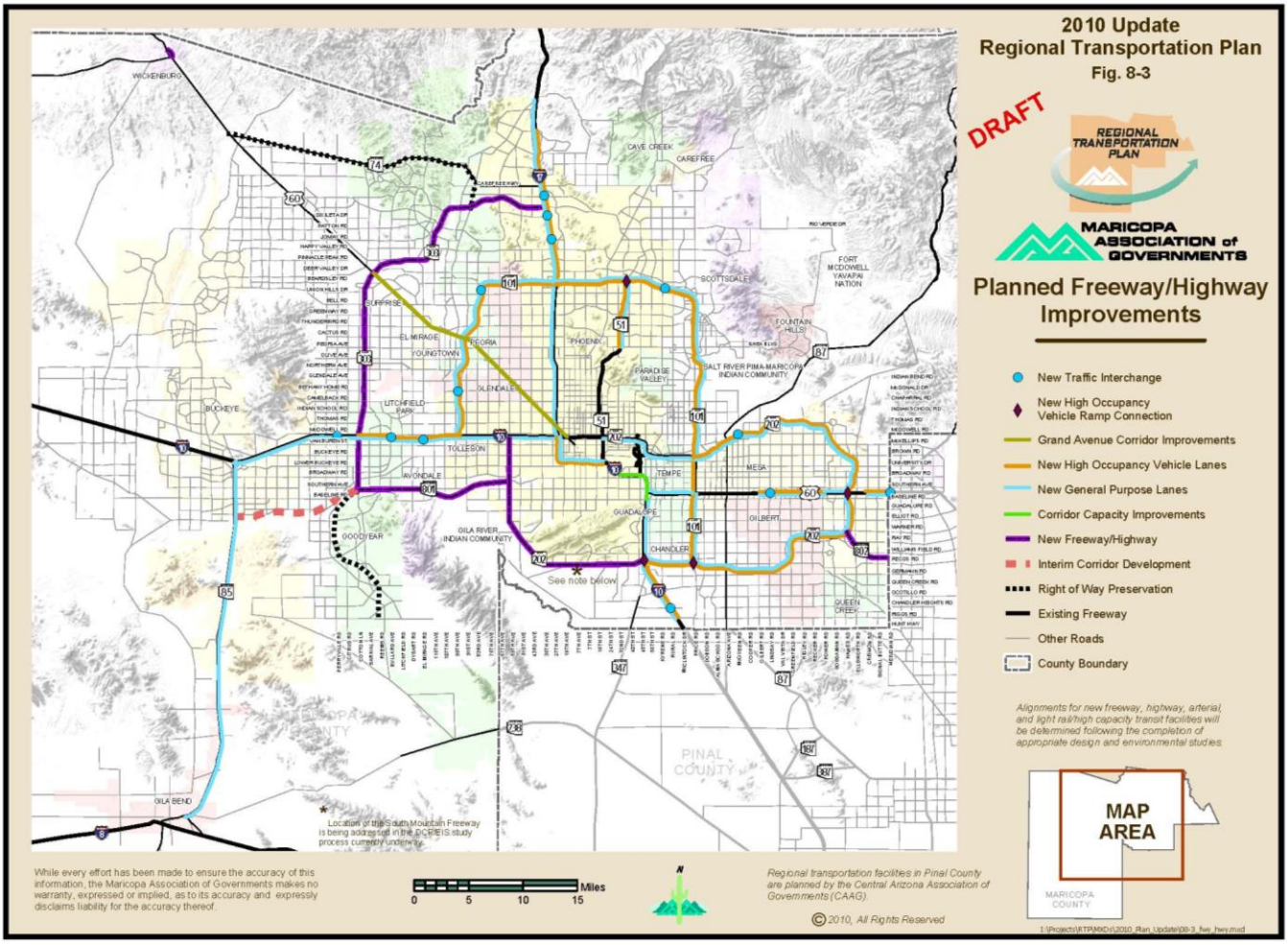
Legend

- 1 General Purpose Lane
- 2 General Purpose Lane
- 3 - 4 General Purpose Lane
- 5 - 6 General Purpose Lane
- 7 - 8 General Purpose Lane

0 1 2 Miles

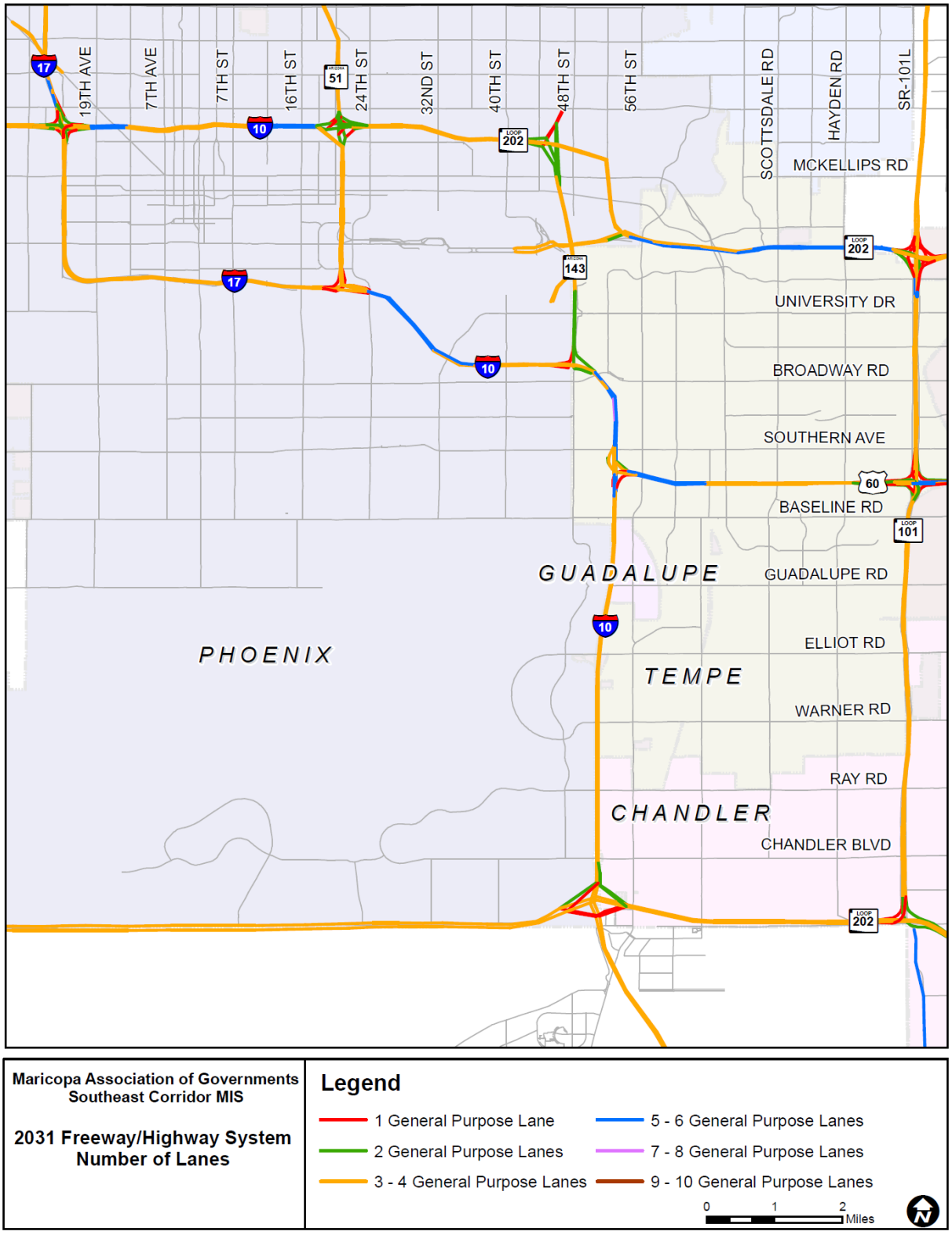
Source: MAG Travel Demand Model, July 2010

Figure 11: RTP Planned Freeway/Highway Improvements



Source: MAG 2010 Update Regional Transportation Plan

Figure 12: 2031 Freeway/Highway System Number of Lanes



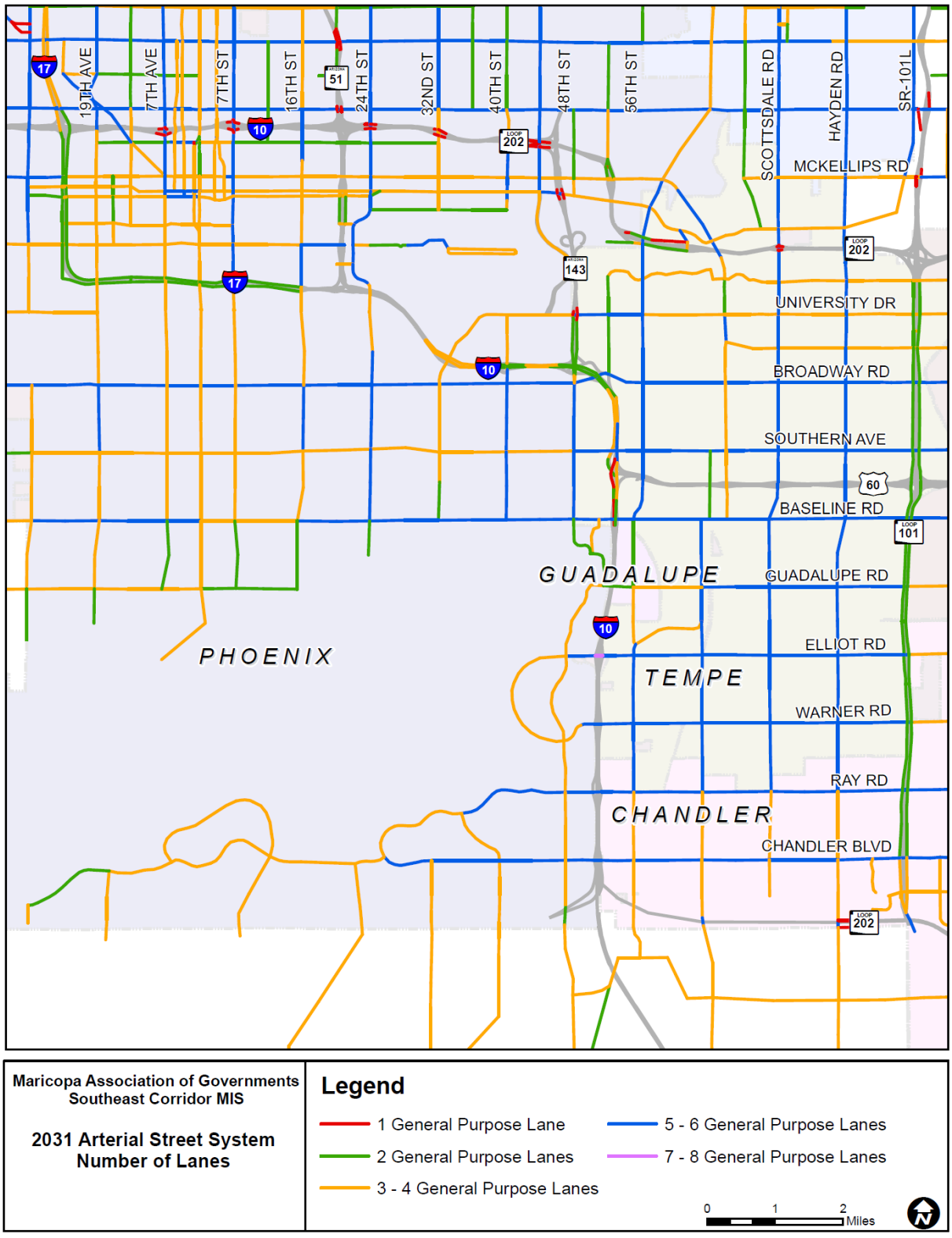
Source: MAG Travel Demand Model, July 2010

3.2.2 Arterial Streets

Five regionally funded arterial street projects identified in the RTP are located within the study area. Four projects are intersection improvements, all of which are located within the City of Chandler. These include the intersection of Chandler Boulevard and Kyrene Road, and the intersections of Ray Road with Kyrene Road, McClintock Road, and Rural Road. The fifth project, Avenida Rio Salado between 51st Avenue and 7th Street, is a new/improved arterial roadway within the City of Phoenix.

In addition to the five regionally funded arterial improvements, additional improvements are planned for the majority of the arterial streets within the study area. **Figure 13** illustrates the total number of through lanes of the 2031 arterial street system, based on the 2031 TDM, and highlights the differences between the 2010 and 2031 systems.

Figure 13: 2031 Arterial Street System Number of Lanes



Source: MAG Travel Demand Model, July 2010

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4.0 EXISTING AND PLANNED TRANSIT SERVICES AND FACILITIES

4.1 Existing Transit Services

The existing transit services in the Southeast Corridor Study Area (study area) consist of local bus, circulators, express bus, and light rail. For the purpose of this review, only the routes that directly impact the study area were included in this section. Service frequencies presented in this report were obtained from Valley Metro's Transit Book for July 2010 to January 2011.

Local Bus

A total of 29 local bus routes provide service seven days a week in the study area. On the weekdays, 5 local bus routes operate better then every 30 minutes all day, 8 local bus routes operate peak frequencies better than 30 minutes and provide 30-minute off-peak service, while the remaining routes operate 30-minute or less frequent service all day. On the weekends, 14 routes operate 30-minute, all day service, and 15 routes operate all day service less frequent than 30 minutes. **Table 2** shows the service frequencies for all local bus routes that operate in the study area. **Figure 14** illustrates the existing local bus service.

Circulators

Eleven circulator routes operate in the study area with three routes operated by the City of Phoenix and eight routes operated by the City of Tempe. The City of Phoenix operates one Downtown Area Shuttle known as DASH, providing service between Central Station (downtown Phoenix) and the State Capitol area. DASH operates Monday through Friday with service every 10 minutes. The City of Phoenix also operates the ALEX route which provides service to residents of the Ahwatukee Foothills area. This route provides service every 60 minutes, seven days a week. The City of Tempe operates three routes around the downtown Tempe/ASU known as FLASH. Service is provided every 10 to 30 minutes, Monday through Friday. In addition, the City of Tempe also operates five other circulator routes branded as Orbit. Service is provided every 15 minutes, Monday through Saturday, and every 30 minutes on Sunday. **Table 3** shows service frequencies for all circulator routes that operate in the study area. The existing circulator routes are shown in **Figure 14.**

Express Bus

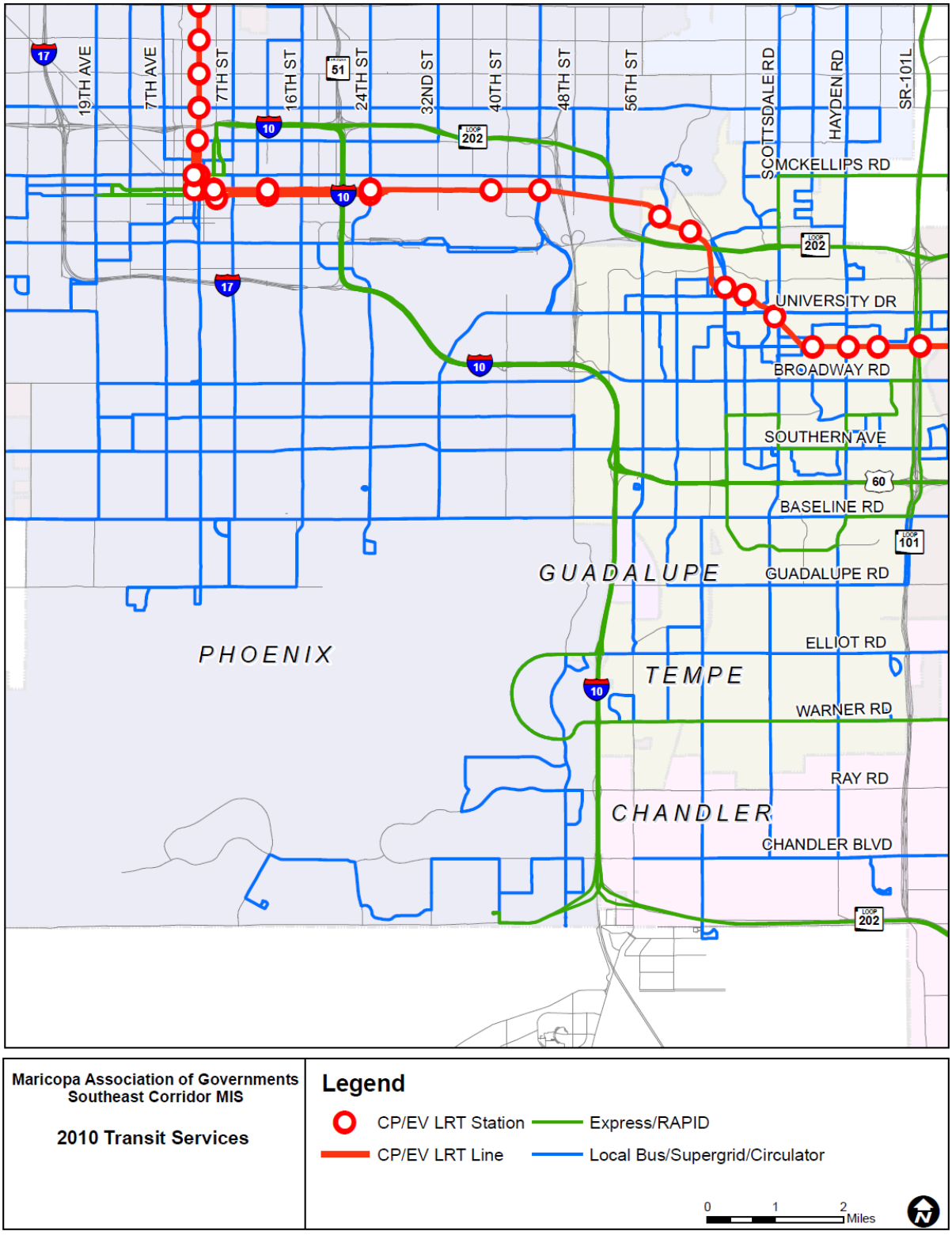
Seven express bus routes provide service within the study area. Ten routes provide peak period, peak direction service to downtown Phoenix. One route (511) provides two-way, peak period, suburb to suburb service. **Table 4** documents service frequencies for all express routes that operate within the study area, while **Figure 14** illustrates the express route network.

Table 2: Existing Local Bus Service within the Study Area

Route	Description	Weekday Headway (min)		Saturday Headway (min)	Sunday Headway (min)
		Peak	Base		
0	Central	10	20	30	30
1	Washington/Jefferson	45	45	60	60
3	Van Buren	15	15	30	30
7	7th Street	20	30	30	30
8	7th Avenue	30	30	30	30
10	Roosevelt/Grant	30	30	30	30
12	12th Street	30	30	60	60
13	Buckeye	30	30	60	60
15	15th Avenue	30	30	60	60
16	16th Street	15	30	30	30
17	McDowell	15	15	30	30
19	19th Avenue	15	15	30	30
30	University	30	30	30-60	60
40	Apache/Main St	30	30	30	30
44	44th St/Tatum	30	30	45	45
45	Broadway	15-30	30	30-60	30
52	Roeser	30	30	60	60
56	Priest Drive	15	30	30	30
61	Southern	15	30	30	30
62	Hardy/Guadalupe	15	30	30	30
65	Mill/Kyrene	30	30	60	60
66	Mill/68th Street/Kyrene	30	30	60	60
70	Glendale/24th Street	15	30	30	30
72	Scottsdale/Rural	20	20	30	30
76	Miller	30	30	60	60
77	Baseline	30	30	30-60	30-60
81	Hayden/McClintock	15-30	30	60	60
108	Elliot Rd	30-60	30-60	60	60
156	Chandler Blvd/ Williams Field Rd	30	30	30	30

Source: Valley Metro Transit Book (July 2010-January 2011)

Figure 14: Existing Transit Service within the Study Area



Source: Valley Metro Transit Book (July 2010)

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Table 3: Existing Circulator Services within the Study Area

Route	Weekday Headway (min)		Saturday Headway (min)	Sunday Headway (min)
	Peak	Base		
DASH[1]	12	12	N/A	N/A
ALEX	60	60	60	60
Orbit - Earth	15	15	15	30
Orbit - Venus	15	15	15	30
Orbit - Mercury	10-15	10-15	15	30
Orbit - Mars	15	15	15	30
Orbit - Jupiter	15	15	15	30
FLASH[2]	9-30	9-30	N/A	N/A

Source: Valley Metro Transit Book (July 2010-January 2011)

Table 4: Existing Express Services within the Study Area

Route	Description	No. of Trips	
		Inbound	Outbound
511	Tempe/Scottsdale Airpark Express	2-AM / 2-PM	2-AM / 2-PM
520	Tempe Express	4	4
521	Tempe Express	7	6
531	Mesa/Gilbert Express	8	7
532	Mesa Express	4	4
533	Mesa Express	5	5
535	Northeast Mesa/Downtown Express	3	3
540	Chandler Express	4	4
541	Chandler Express	5	5
542	Chandler/Downtown Express	5	5
I-10E	RAPID - I-10 East	16	15

Source: Valley Metro Transit Book (July 2010-January 2011)

Light Rail

The Central Phoenix/East Valley Light Rail Line (CP/EV LRT Line) is a 20-mile route that operates within the study area. This route has 28 stations and 8 park-and-ride facilities. The CP/EV LRT Line connects the cities of Phoenix, Tempe, and Mesa with stations in downtown Phoenix, downtown Tempe/ASU, and Phoenix Sky Harbor International Airport. **Table 5** shows the annual ridership and service frequencies for light rail. The existing light rail service is depicted in **Figure 14**.

Table 5: Existing Light Rail Service within the Study Area

Route	Weekday Headway (min)		Saturday Headway (min)	Sunday Headway (min)
	Peak	Base		
Central Phoenix – East Valley	12	20	15-20	20

Source: Valley Metros Transit Book (July 2010-January 2011)

4.2 Planned Transit Services

A variety of transit service improvements are planned for the study area and include local bus/supergrid, express bus, Arterial Bus Rapid Transit (Arterial BRT), and high capacity transit.

Local Bus/Supergrid

According to the Regional Transportation Plan 2007 Update, 10 Supergrid routes are planned to be operated with regional sales tax revenues. Supergrid service is local bus service which provides consistent levels of service through multiple jurisdictions. Nine of the routes currently operate today, while one of the routes (Ray Rd) is an entirely new route. Two routes (Buckeye Rd and Tatum Blvd\44th St) are identified for implementation beyond 2026. Routes postponed beyond 2026 were originally included in the RTP; however, current economic conditions have delayed their implementation or transition to regional funding beyond 2026. Depending upon future economic conditions, regional funding for these routes could be restored. **Table 6** identifies the planned transit headways, and year that each Supergrid route will be funded through regional revenues sources. Planned Supergrid routes are illustrated in **Figure 15**.

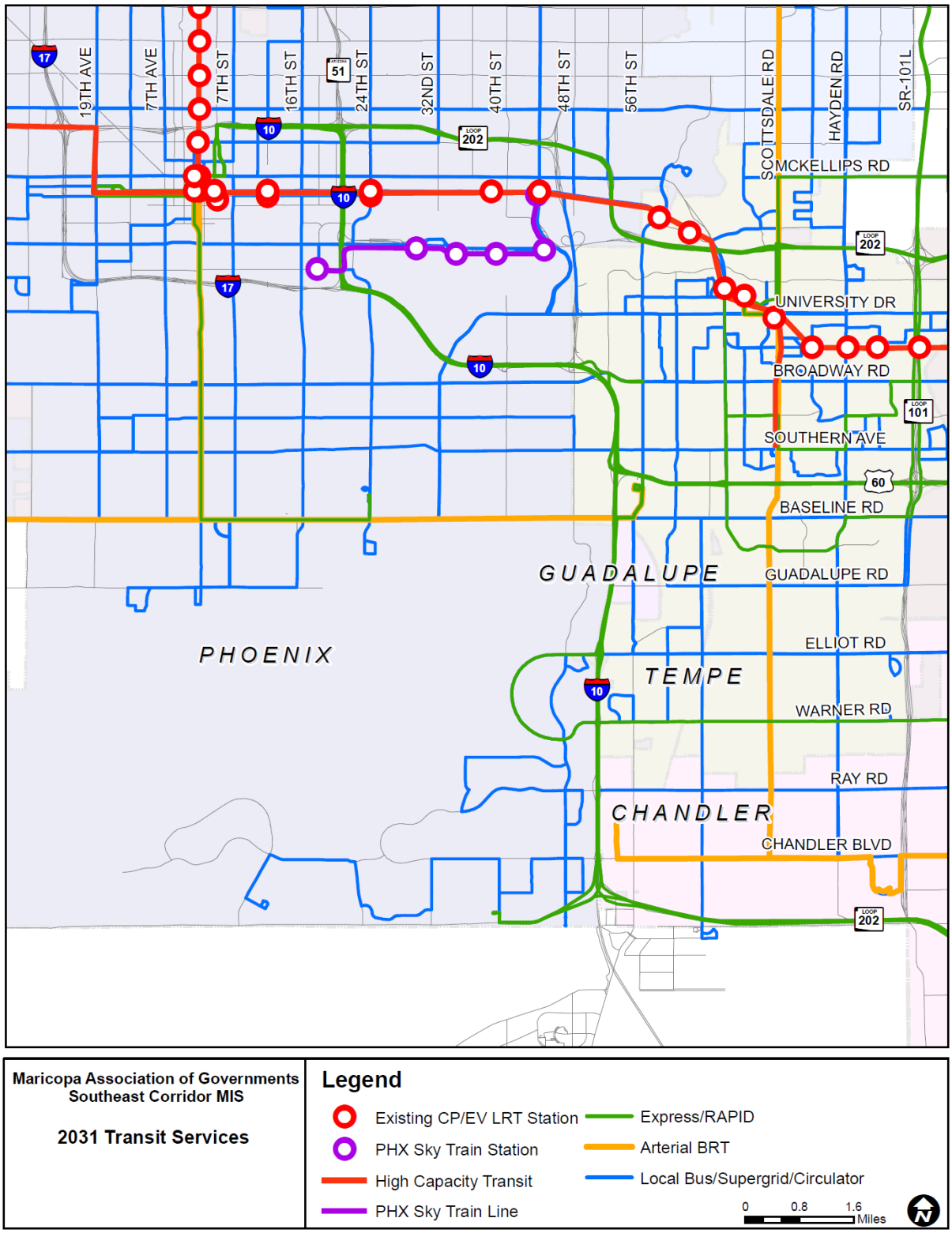
Table 6: Planned Regional Local Bus/Supergrid Service within the Study Area[1]

Supergrid	Weekday Headway (min)		Saturday Headway (min)	Sunday Headway (min)	Fiscal Year of Operation
	Peak	Base			
Elliot Road	30	30	60	60	2013
McDowell/McKellips Road	15	30	30	30	2014
Baseline Road	30	30	30	30	2015
University Drive	15	30	60	60	2016
Broadway Avenue	15	30	30	30	2018
Hayden/McClintock	15	30	60	60	2021
Van Buren	15	30	30	30	2021
Ray Road	30	30	60	60	2023
Buckeye Road	N/A	N/A	N/A	N/A	Beyond 2026
Tatum Boulevard/44th Street	N/A	N/A	N/A	N/A	Beyond 2026

Source: Regional Transportation Plan, 2010 Update; TLCP Final Report, 2010

[1]Includes regionally funded transit service improvements only

Figure 15: Planned Transit Service within the Study Area



Source: MAG RTP and Valley Metro Transit Life Cycle Program, 2010

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Express Bus

Eight new express bus routes are planned for study area. One route is planned to operate by 2015 with a total of 48 daily trips. The remaining routes are planned to be implemented beyond 2026. **Table 7** identifies the planned express bus routes and **Figure 15** depicts the planned express bus routes.

Table 7: Planned Express Bus within the Study Area[1]

Express Bus	No. of Trips		Fiscal Year of Operation
	Inbound	Outbound	
South Central Express	24	24	2015
Apache Junction Express	N/A	N/A	Beyond 2026
Superstition Freeway Connector	N/A	N/A	Beyond 2026
Pima Express	N/A	N/A	Beyond 2026
Ahwatukee Connector	N/A	N/A	Beyond 2026
Santan Express	N/A	N/A	Beyond 2026
Red Mountain Freeway Connector	N/A	N/A	Beyond 2026
Superstition Springs Express	N/A	N/A	Beyond 2026

Source: Regional Transportation Plan, 2010 Update; TLCP Final Report, 2010
[1]Includes regionally funded transit service improvements only

Arterial BRT

Three new Arterial BRT routes are identified to in the study area. Arterial BRT is a branded, limited stop bus route that has enhanced stations and takes advantage of queue jumper lanes, signal priority, or other travel time saving methods. The planned Arterial BRT routes are designed to feed into existing or planned high capacity transit. **Table 8** identifies the planned Arterial BRT routes within the study area. **Figure 15** shows the planned Arterial BRT service. Two of the routes have been postponed to a year beyond 2026.

Table 8: Planned Arterial BRT within the Study Area[1]

Arterial BRT	Weekday Headway (min)		Number of Daily Trips	Fiscal Year of Operation
	Peak	Base		
Scottsdale/Rural Road Arterial BRT	30	30	48	2016
South Central Avenue Arterial BRT	N/A	N/A	N/A	Beyond 2026
Chandler Boulevard Arterial BRT	N/A	N/A	N/A	Beyond 2026

Source: Regional Transportation Plan, 2010 Update; TLCP Final Report, 2010
[1]Includes regionally funded transit service improvements only

High Capacity Transit

Three high capacity transit corridors are identified within the study area. The Tempe South corridor would provide service from downtown Tempe/ASU to the south. The Phoenix West corridor would provide service between downtown Phoenix and West Phoenix. PHX Sky Train is an automated people mover that is planned to provide a transit connection between the 44th/Washington Street LRT Station

and Phoenix Sky Harbor International Airport. PHX Sky Train will be implemented in two phases, with the first phase connecting the 44th/Washington Street LRT Station to Terminal 4. By 2020, PHX Sky Train will have stations at Terminal 3, a future terminal, and the rental car center. **Table 9** and **Figure 15** identify the planned high capacity transit services within the study area. Planning work is concurrently ongoing for the Tempe South and Phoenix West corridors and final HCT station locations have not been defined yet; therefore, the stations for these corridors are not depicted in Figure 15.

Table 9: Planned High Capacity Transit within the Study Area

High Capacity Transit	Fiscal Year of Operation
Tempe South	2017
Phoenix West (I-10 West)	2021
PHX Sky Train - Stage 1	2013
PHX Sky Train - Stage 2	2020

Source: METRO, 2010; Phoenix International Airport, 2010

5.0 Transportation System Performance

Understanding how existing transportation infrastructure and services are performing today along with projected travel demand is invaluable for identifying overall transportation system deficiencies and needs. Existing performance of the study area's highway, arterial street, and transit networks is documented in this chapter. All reported data is sourced from previously completed studies or from agency provided performance reports.

5.1 Existing Roadway Performance

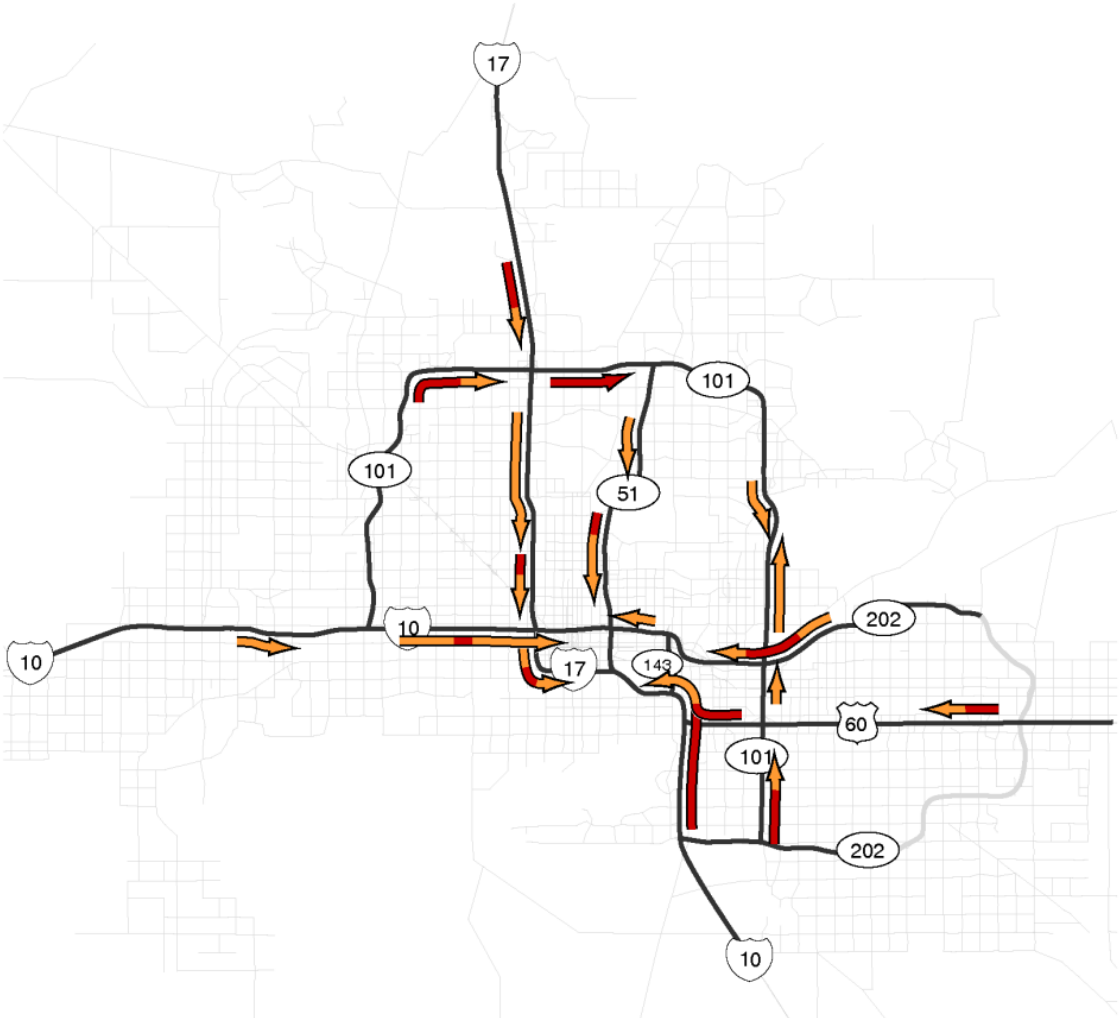
Recurring weekday congestion in the Study Area has been well documented by the Maricopa Association of Governments (MAG). Three particular documents that have recently quantified congestion in the corridor are the: 1) 2006 MAG Freeway Level of Service Study; 2) 2007 MAG Regional Travel Time and Speed Study; and 3) MAG 2010 Update Regional Transportation Plan (RTP). The first two studies involved the collection and analysis of field data related to traffic operations and the third included simulation analysis using the regional MAG Travel Demand Model (MTDM). From these sources four separate performance measures are available to quantify existing roadway performance. These measures include freeway level of service, freeway travel times and speed, freeway bottle necks, and intersection level of service.

2006 MAG Freeway Level of Service Study
This study involved the analysis of aerial photography shot during morning and afternoon periods to record traffic densities on freeways in the region. The densities were then correlated to speed and level of service. **Figures 16** and **17** illustrate the congested freeway locations identified in the AM and PM peak hours by the study.

As can be seen, every freeway within the Southeast Corridor study area experiences recurring congestion. The report goes on to discuss in light detail the locations and potential causes of congestion in these corridors, and makes comparisons to the results of a study performed for the same study area in 2001 using the same methods. The report also contains detailed level of service results for each photographed freeway in map and tabular forms, including levels of service in 30-minute time intervals during the morning and afternoon periods, 5:30 to 9:30 a.m. and 3:00 to 7:00 p.m., respectively.

Figure 16: AM Congested Locations (2006 MAG Freeway Level of Service Study)

Locations Where Congestion was Found
Morning (5:30 - 9:30 a.m.)



Legend

Congested flow (Estimated average speed 30-50 mph)

Congested flow (Estimated average speed < 30 mph)

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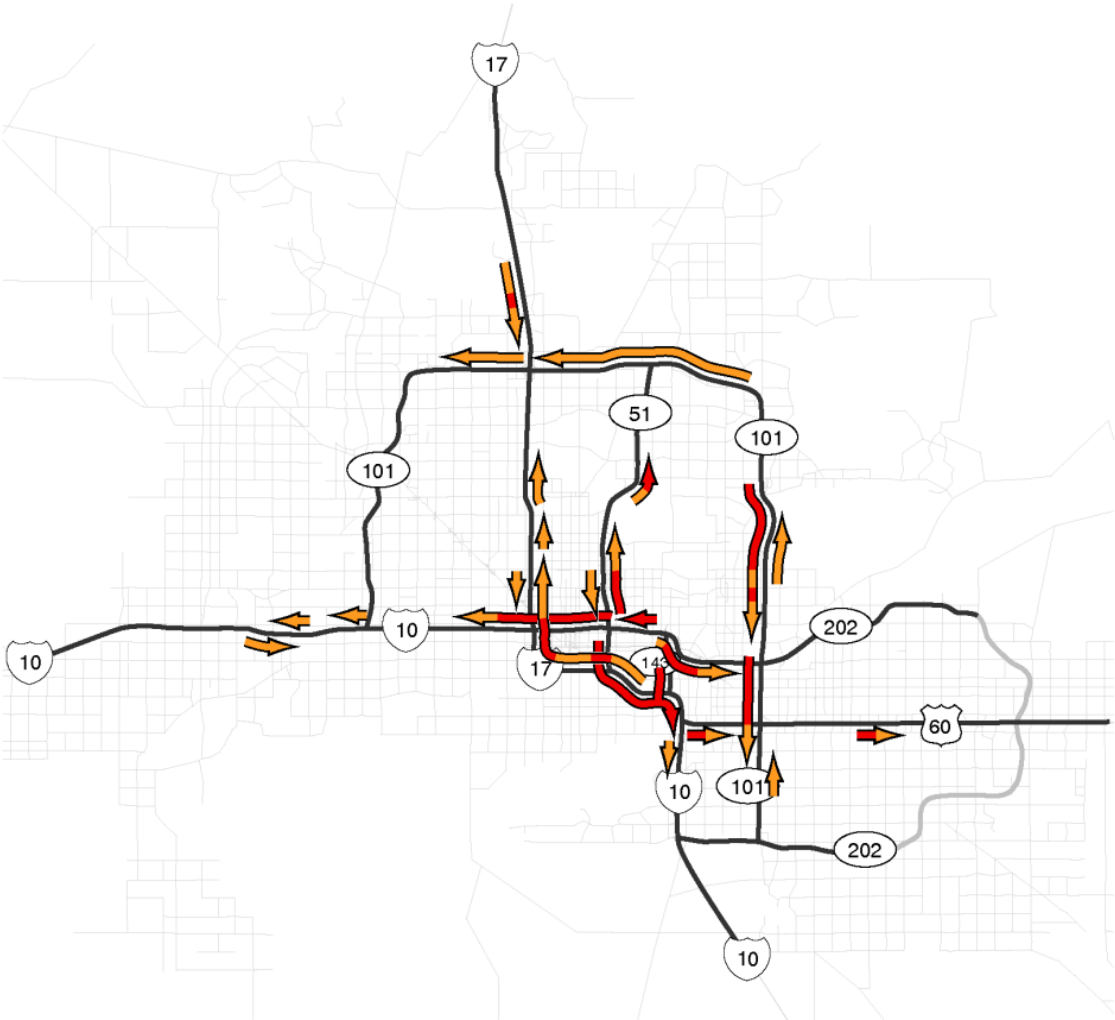
Figure 17: PM Congested Locations (2006 MAG Freeway Level of Service Study)

Locations Where Congestion was Found
Evening (3:00 - 7:00 p.m.)



Legend

- Congested flow (Estimated average speed 30-50 mph)
- Congested flow (Estimated average speed < 30 mph)

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2007 MAG Regional Travel Time and Speed Study

This study was performed to provide data to validate and calibrate the regional MTDM and to provide trend analysis in speed and delay on the region's roadway network. Both freeways and arterials were included in this study. The study included an extensive number of travel time and delay field runs (using the "floating car method"). This study provides a detailed and comprehensive view of average daily traffic operations within the MAG region. **Figures 18** and **19** are figures directly from the study that highlight the regional freeway delay, and **Figures 20** and **21** illustrate the average travel speeds on the freeway sections. The results are fairly consistent with the findings of the *2006 MAG Freeway Level of Service Study* already discussed and further illustrate the existing congestion within the corridor.

The study collected separate data for the freeway HOV lanes. The study verified that somewhat, but not drastically, higher average speeds are experienced on the HOV facilities than the general freeway during peak hours as illustrated in **Figures 22** and **23**.

The study also collected travel time and speed data for the regional arterial network. This study includes extensive information about travel time in the region with segment specific travel time information. Maps and tables illustrating travel times, delay, speeds, level of service, and stopped delay are included. On an arterial network it is generally the nodes (intersections) that are the primary source of delay. **Figures 24**, **25**, and **26** are examples from the report that illustrate the level of service (LOS) of the arterial intersections within the study area. Per the report, the following methodology was used for determining LOS:

Delay calculations were provided for through vehicles only. No analyses were conducted for turning movements. The delay in seconds was then compared with the Highway Capacity Manual, Transportation Research Board, 2000, Exhibit 16-2, criteria for level of service (LOS) for signalized intersections. These criteria categorize vehicle delay into levels of service ranging from LOS A, meaning less than or equal to 10 seconds of delay, to LOS F, meaning more than 80 seconds of delay.

As such, it is not the typical definition of intersection LOS (no turning movements); however, the LOS findings reveal congested intersections in the study area. Through traffic at numerous intersections within the Southeast Corridor Study Area experiences significant delay in the morning peak hours, although it is moving in a coordinated traffic signal system. In the afternoon peak hours, through traffic at even more intersections begins to experience delay including some severe delays, especially on arterials that feed the freeway system. Such delays are not experienced in the mid-day hours indicating that the congestion is primarily a peak-hour problem.

Figure 18: AM Average Freeway Segment Delay per Mile (2007 MAG Travel Time and Speed Study)

Figure 50 - Average Freeway Segment Delay per Mile – AM

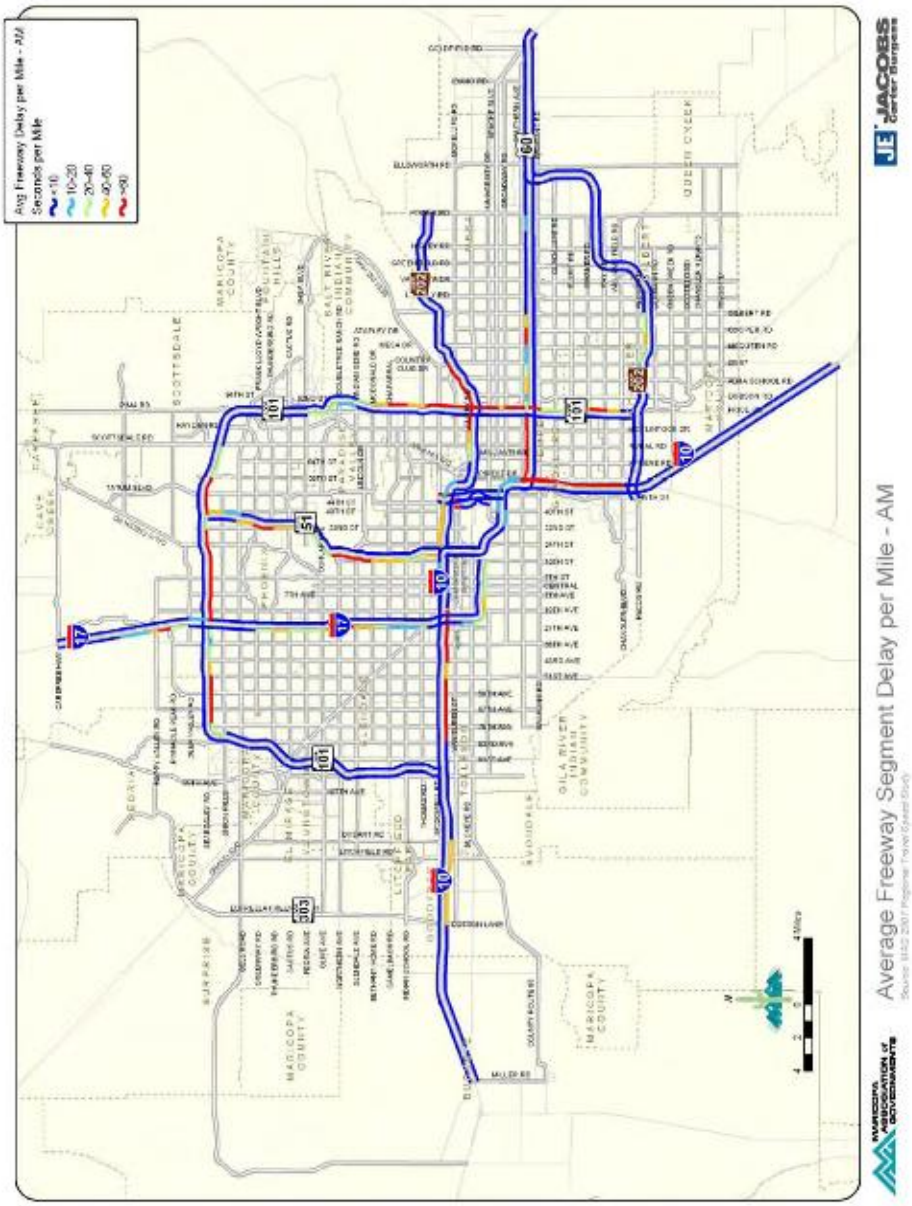

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Figure 19: PM Average Freeway Segment Delay per Mile (2007 MAG Travel Time and Speed Study)

Figure 52 - Average Freeway Segment Delay per Mile – PM

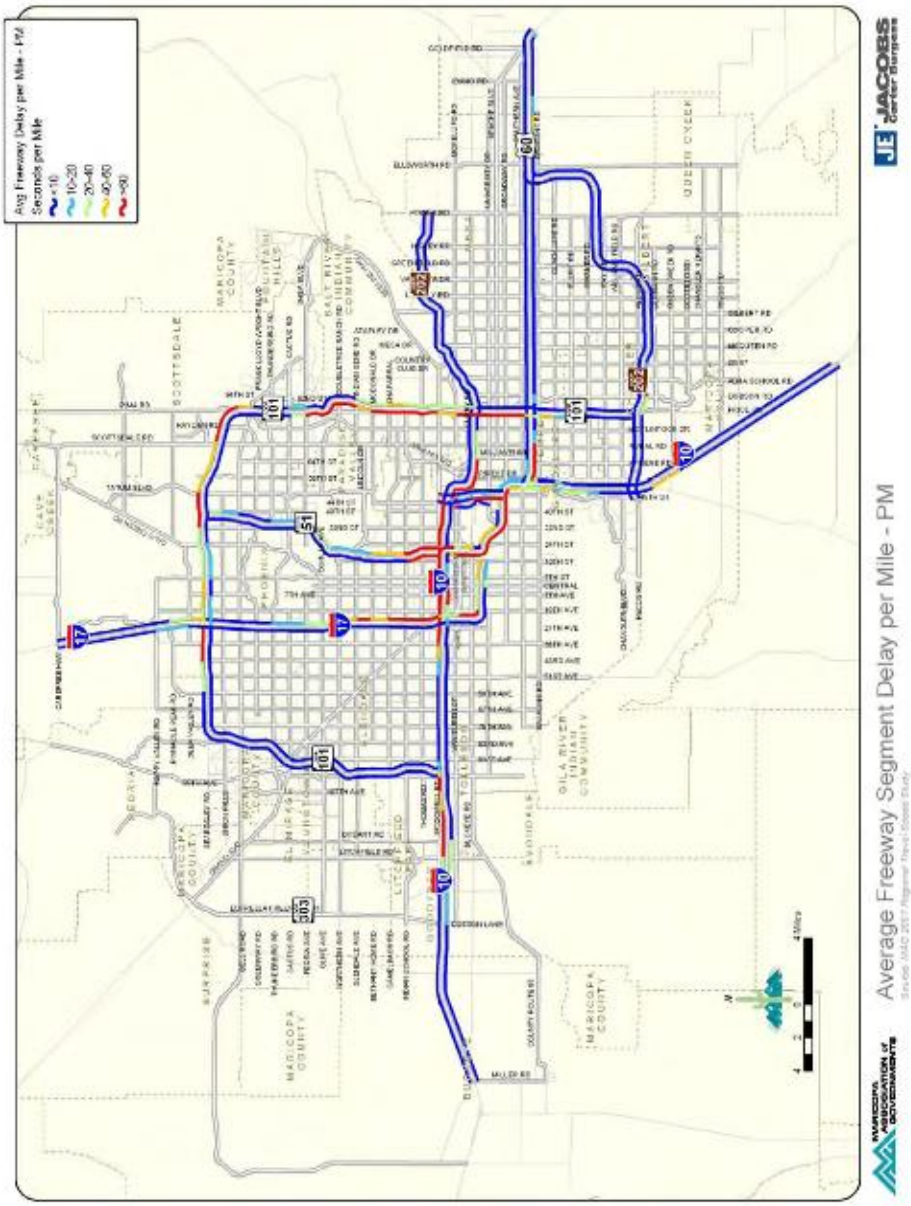

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Figure 20: AM Average Freeway Speed (2007 MAG Travel Time and Speed Study)

Figure 23 - Average Freeway Speed - AM

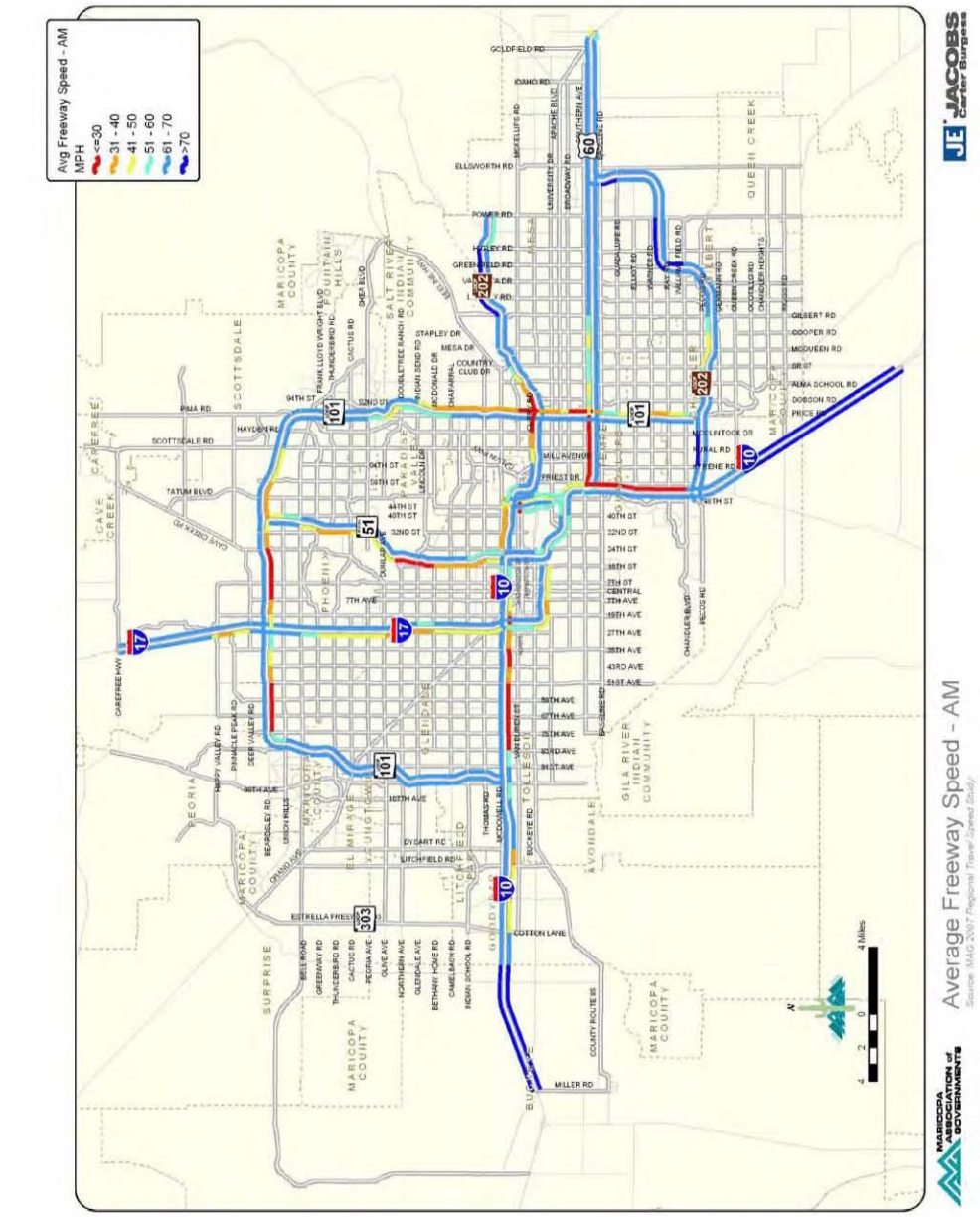

Figure 21: PM Average Freeway Speed (2007 MAG Travel Time and Speed Study)

Figure 25 – Average Freeway Speed – PM

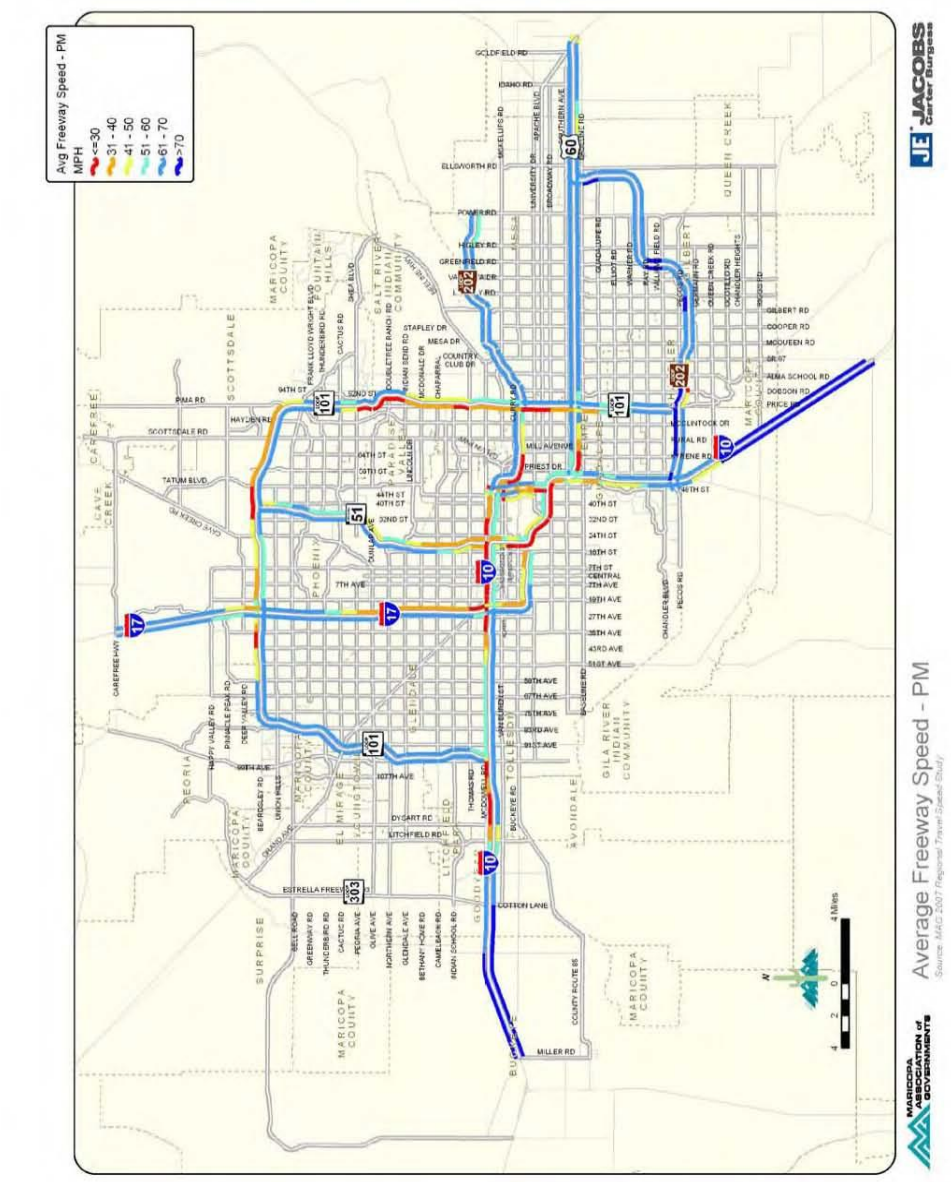

Figure 22: AM Average HOV Speed (2007 MAG Travel Time and Speed Study)

Figure 26 - Average HOV Speed - AM

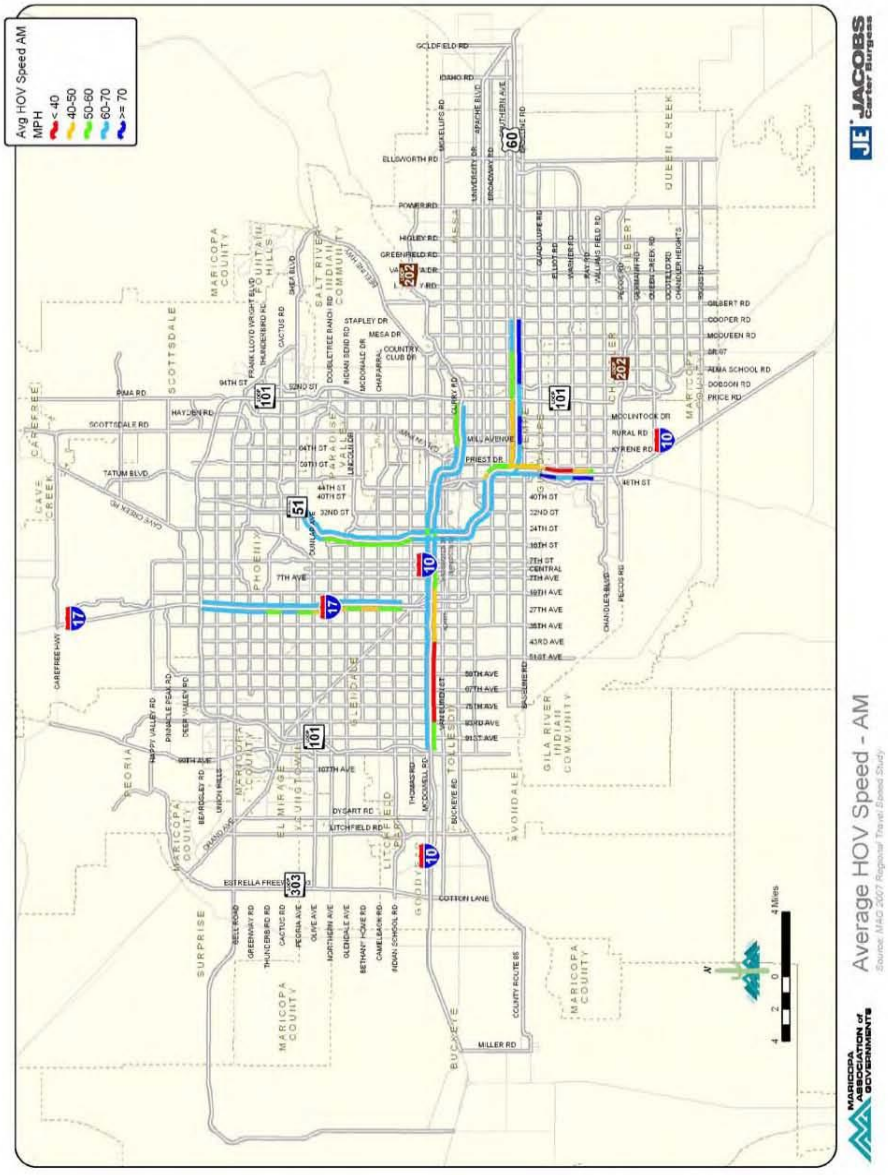

Figure 23: PM Average HOV Speed (2007 MAG Travel Time and Speed Study)

Figure 27 - Average HOV Speed - PM

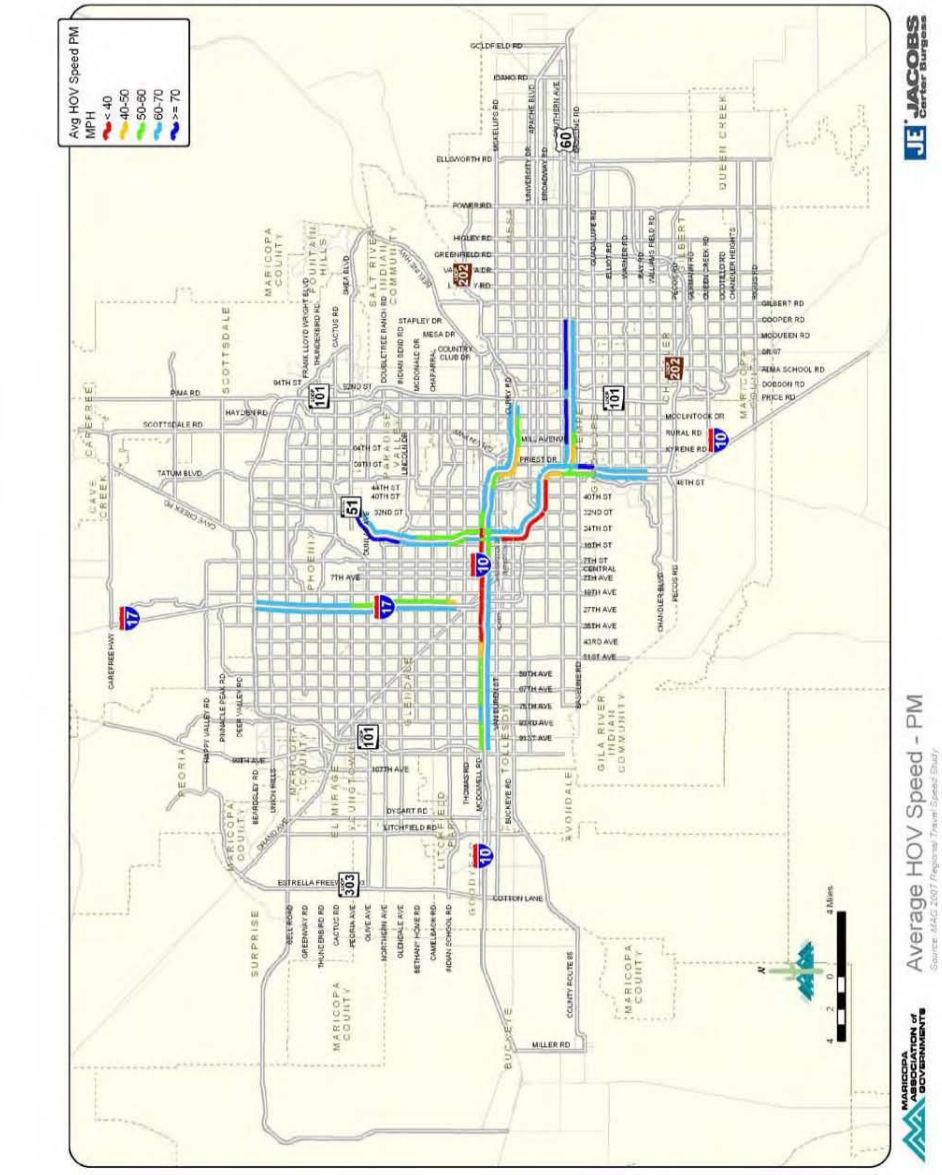

Figure 24: AM Intersection Level of Service (2007 MAG Travel Time and Speed Study)

Figure 53 – Intersection LOS – AM

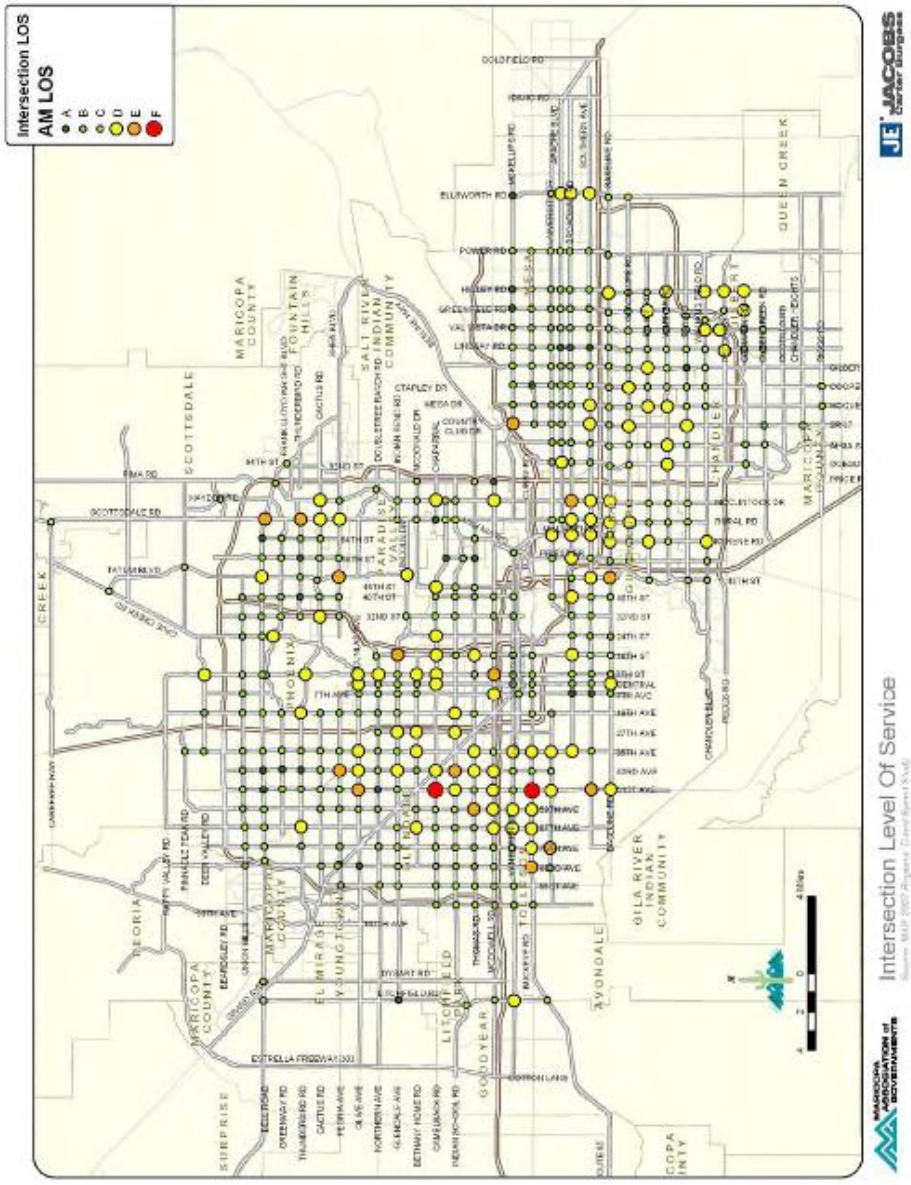

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Figure 25: Mid-day Intersection Level of Service (2007 MAG Travel Time and Speed Study)

Figure 54 – Intersection LOS – Mid-Day

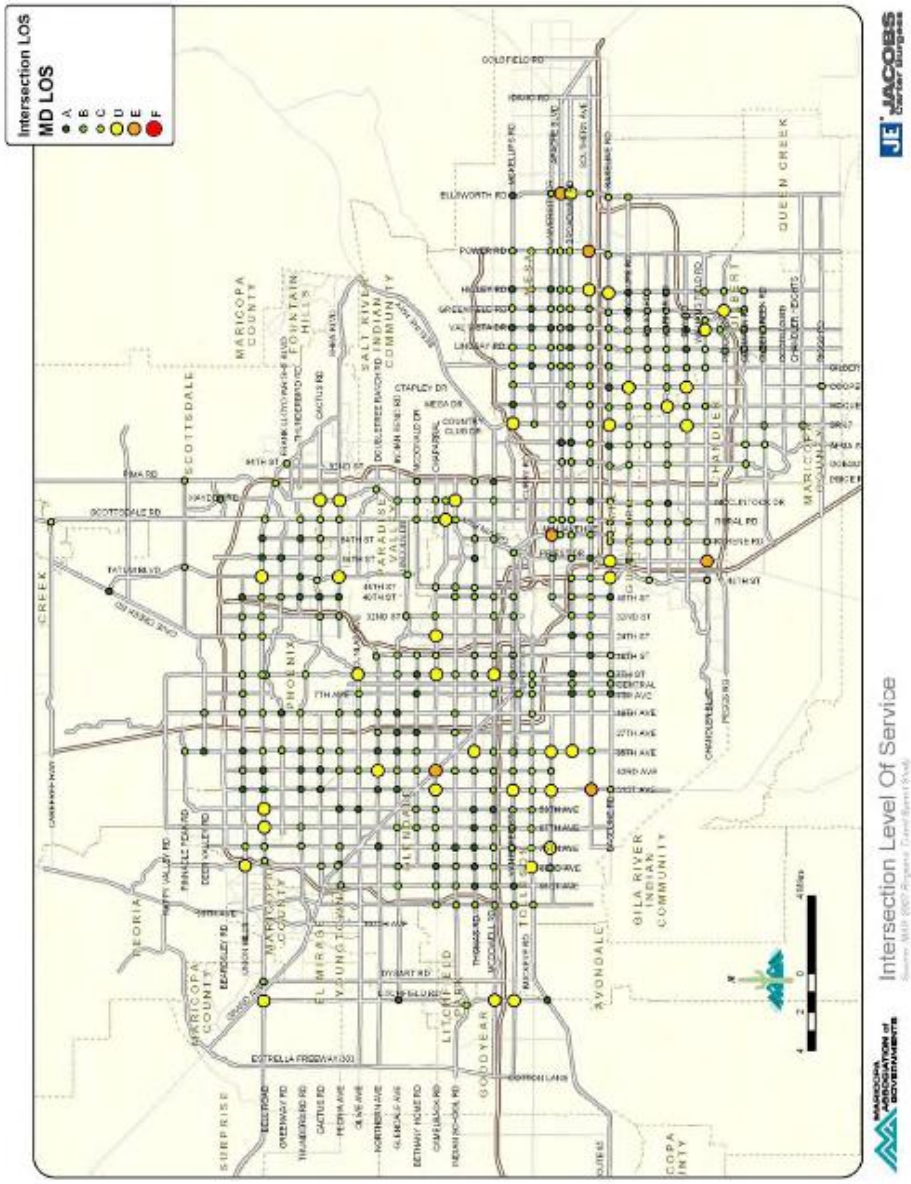
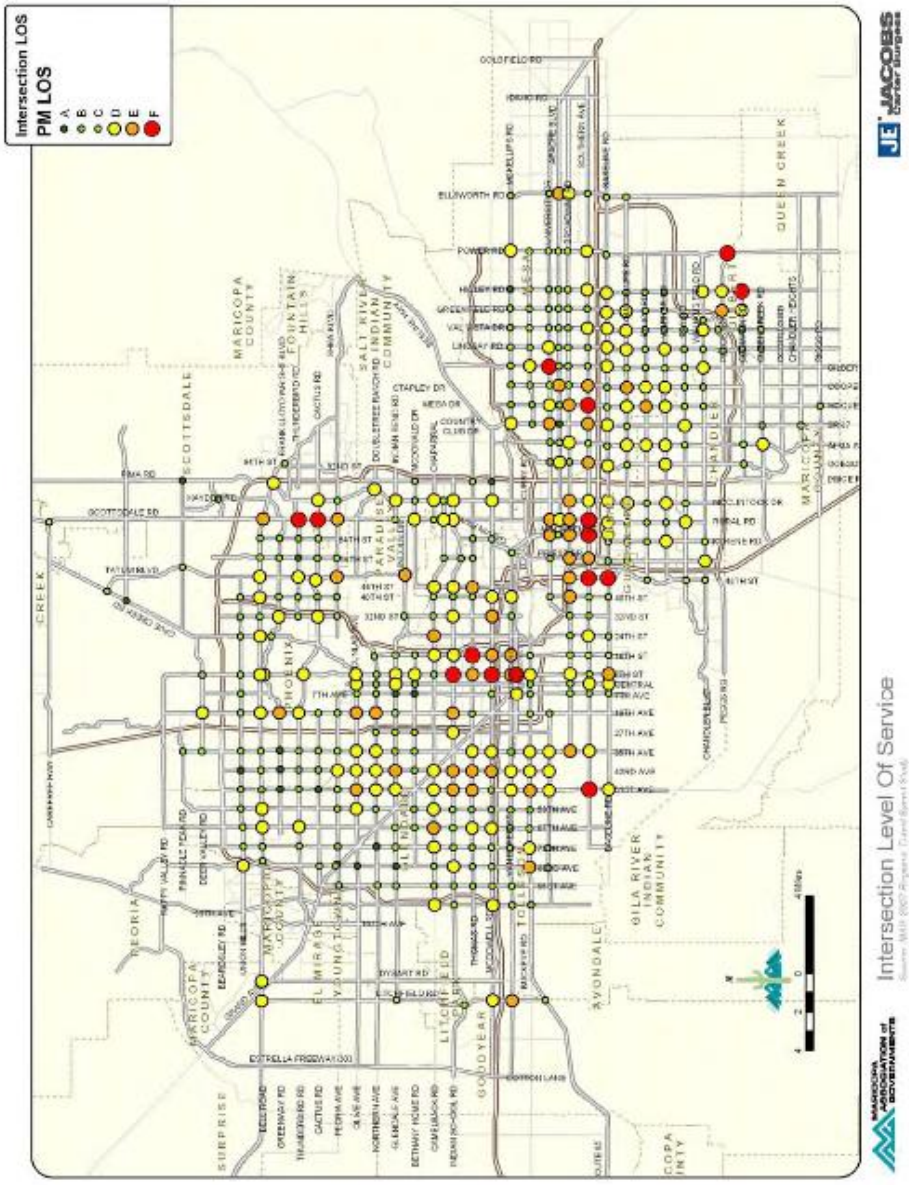


Figure 26: PM Intersection Level of Service (2007 MAG Travel Time and Speed Study*)*

Figure 55 – Intersection LOS – PM



MAG 2010 Update Regional Transportation Plan (RTP)

For the development of the RTP, MAG performed travel demand model simulations of the traffic performance of the regional roadway network based on 2008 travel demand and 2030 travel demand forecasts. This is the only document of the three discussed herein that addresses future conditions.

The following figures (**Figures 27** through **Figure 30**) provide a summary of the findings with respect to congestion in terms of level of service in the network for the afternoon (PM) peak hours of travel. For the freeways in the Southeast Corridor study area, significant congestion (LOS E & F) is shown to exist in 2008 for all freeways within the corridor, which is consistent with the other two studies discussed. By 2030, freeway congestion levels are predicted by the model to worsen significantly, which is not surprising given that population forecasts in the region predict that population will double between 2000 and 2030.

Similar findings can be seen from the arterial intersection level of service findings which indicate that several intersections currently experience LOS of E & F during the PM peak period, and a major increase in the number of congested intersections will occur between now and 2030 even with the arterial improvements included in the current RTP.

Figure 27: 2008 Freeway Level of Service E and F (MAG RTP)

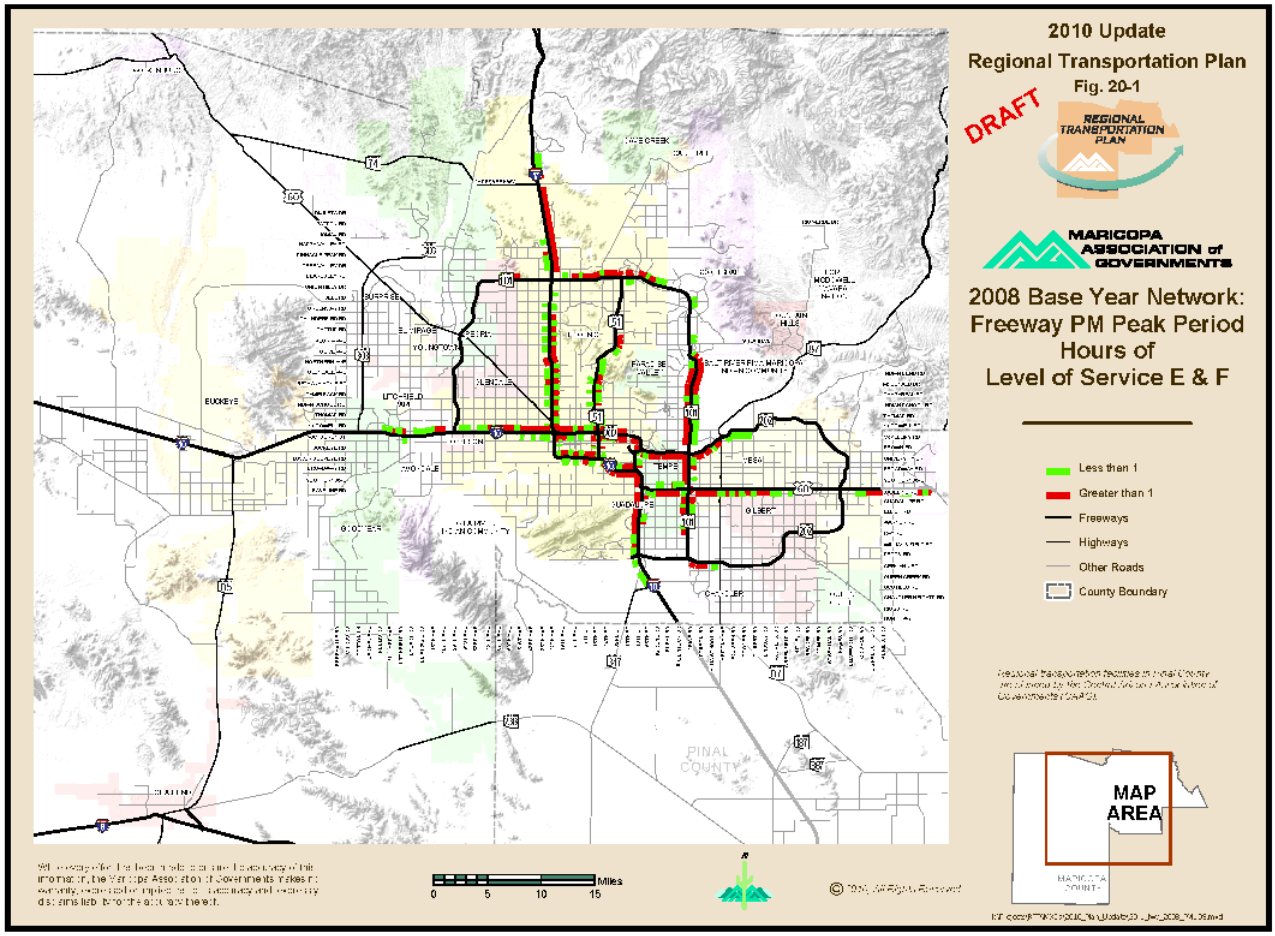


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Figure 28: 2030 Freeway Level of Service E and F (MAG RTP)

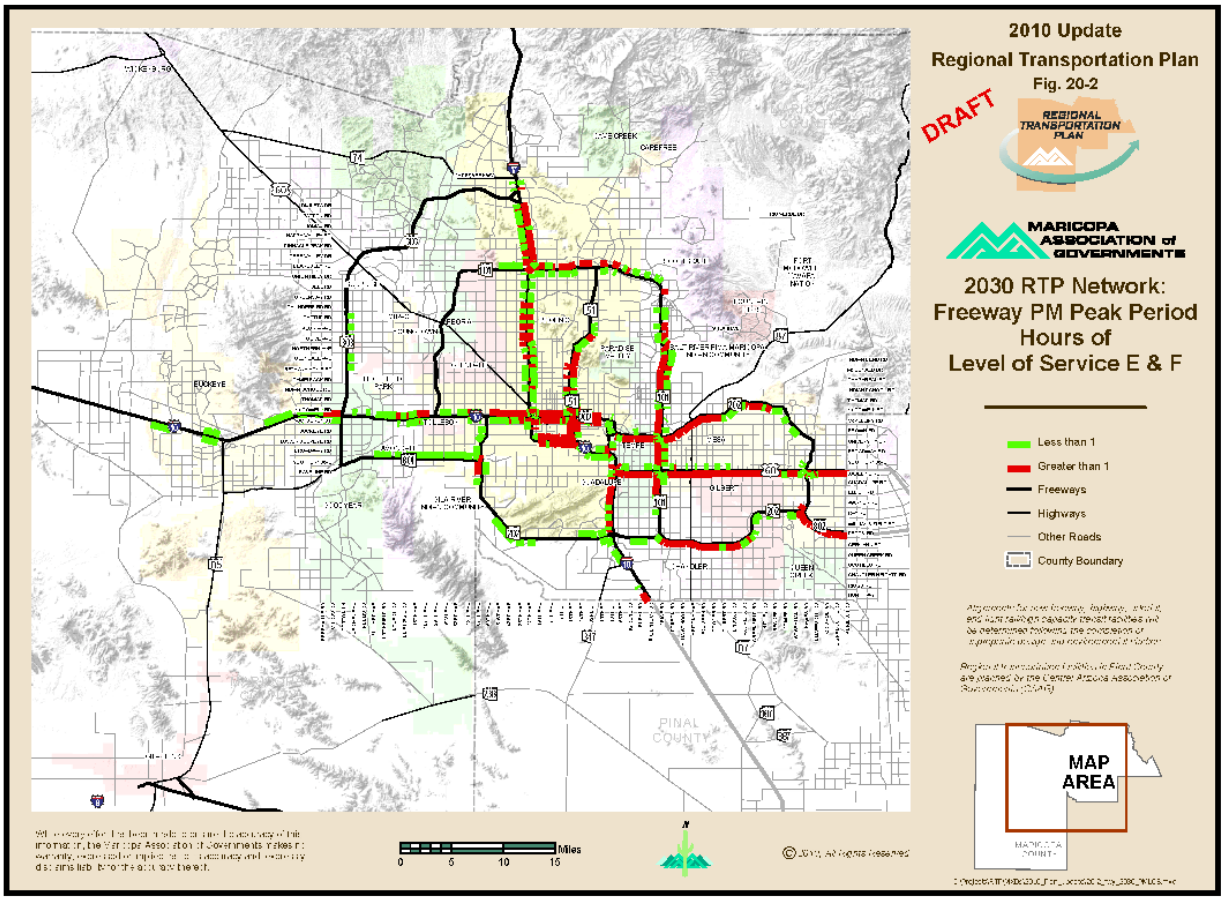

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Figure 29: 2008 PM Intersection Level of Service E and F (MAG RTP)

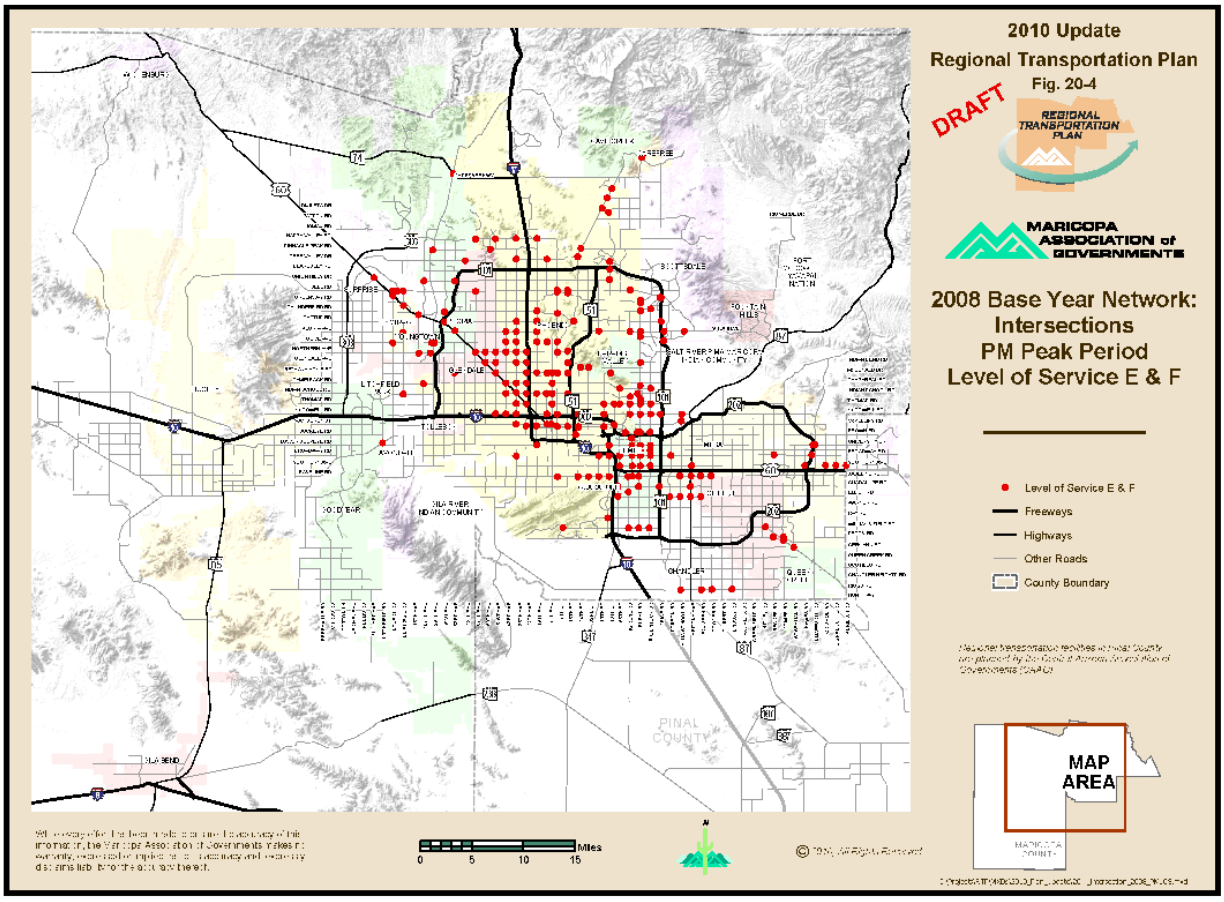

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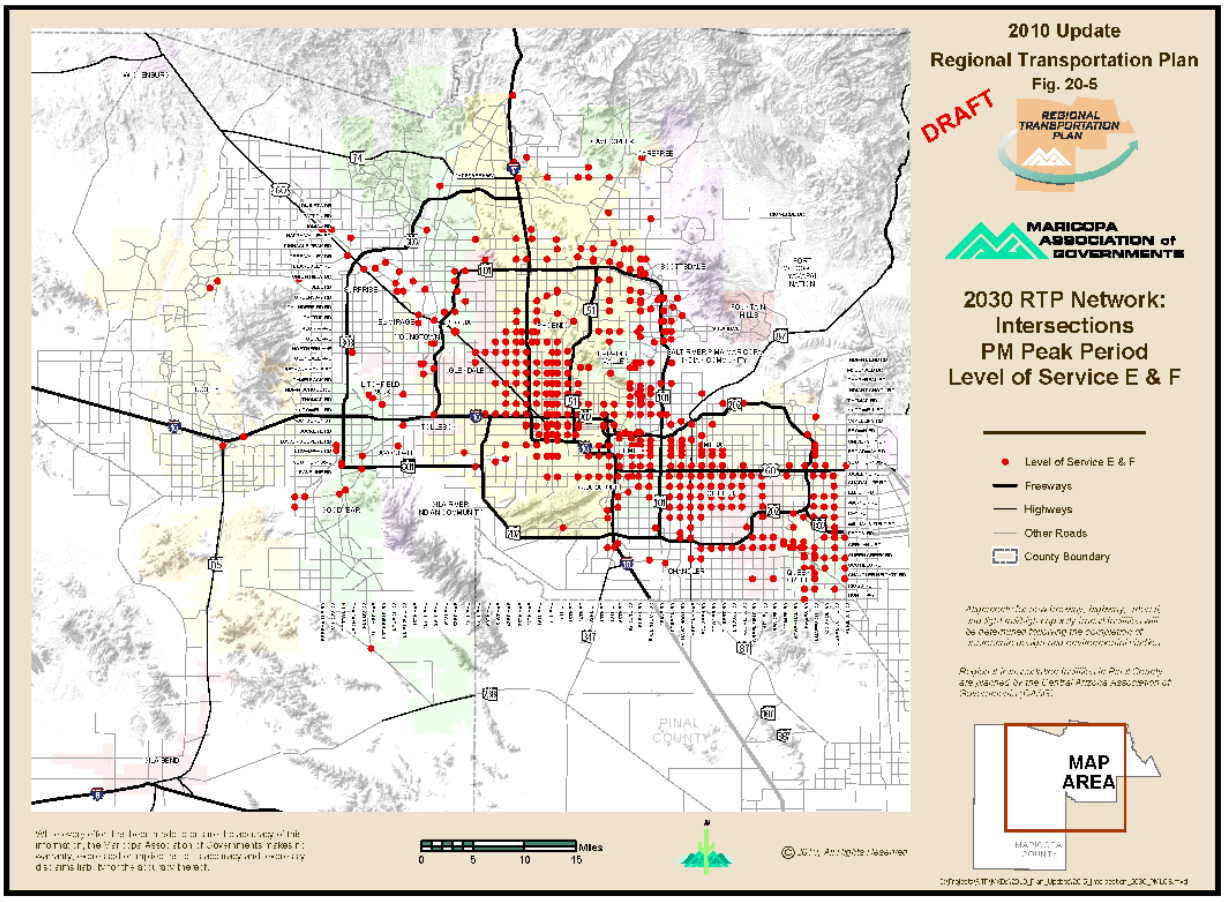
Figure 30: 2030 Intersection Level of Service for 2030 RTP Network (MAG RTP)



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Additional Freeway Bottleneck Information

Based on the 2007 MAG Regional Travel Time and Speed Study data, and the ADOT FMS, the following maps (**Figures 31** and **32**) were generated by MAG, which highlights the regional freeway recurring bottleneck locations. These maps indicate that there are segments within the I-10 and US 60 corridors located within the study area that are experiencing traffic delays between 30 and 120 minutes in duration with person hour delays as high has 600 to 900 person hours per mile. The most significant delays are found on I-10 northbound between Chandler Blvd and US 60 and on US 60 westbound between Mill Ave and Priest Dr during the AM peak period. During the PM peak period, the most significant bottle necks in the study area are on I-10 eastbound between I-17 and Guadalupe Rd and on eastbound US 60 between I-10 and Rural Rd.

Figure 31: 2007 MAG Freeway Bottleneck Locations – AM Peak Period

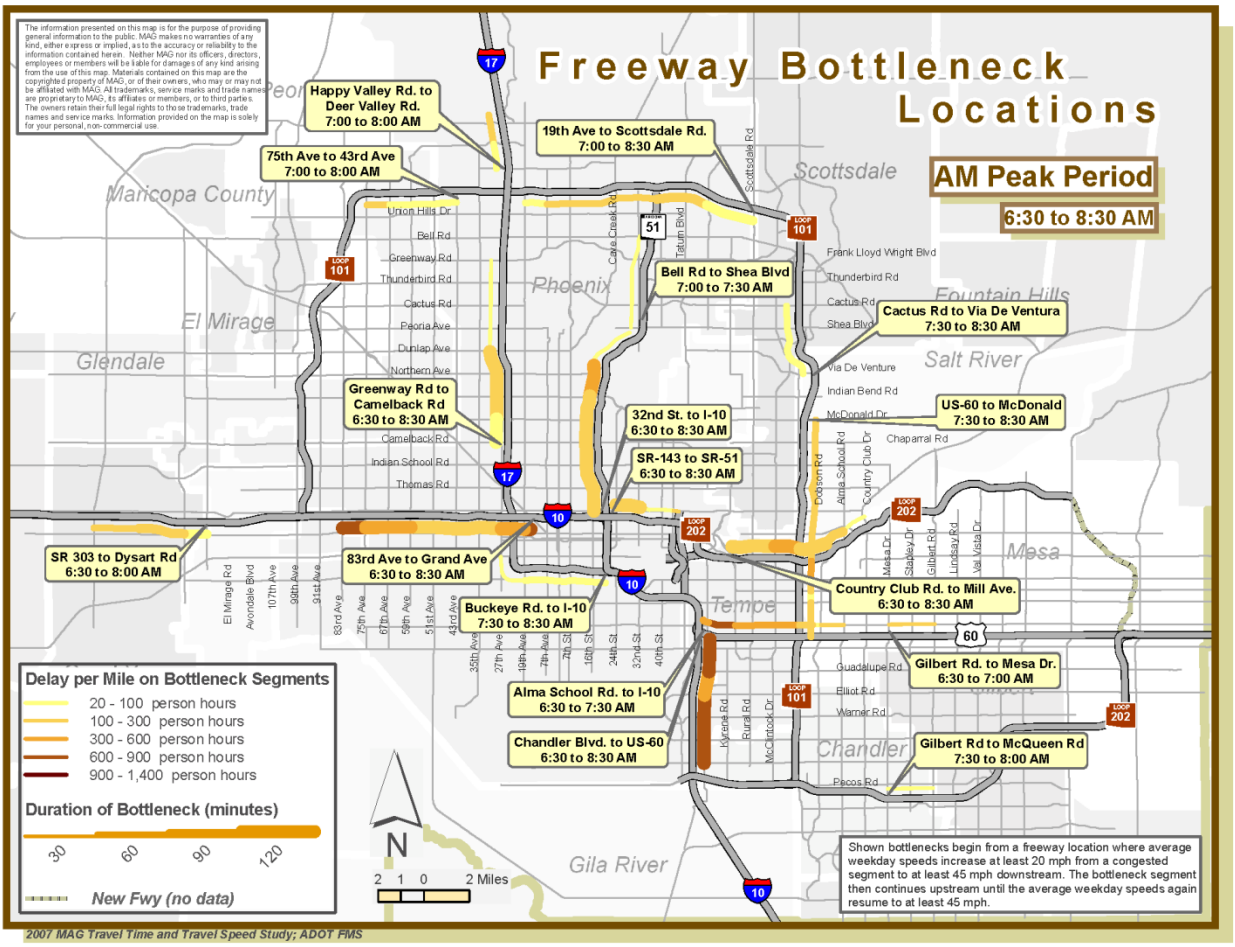

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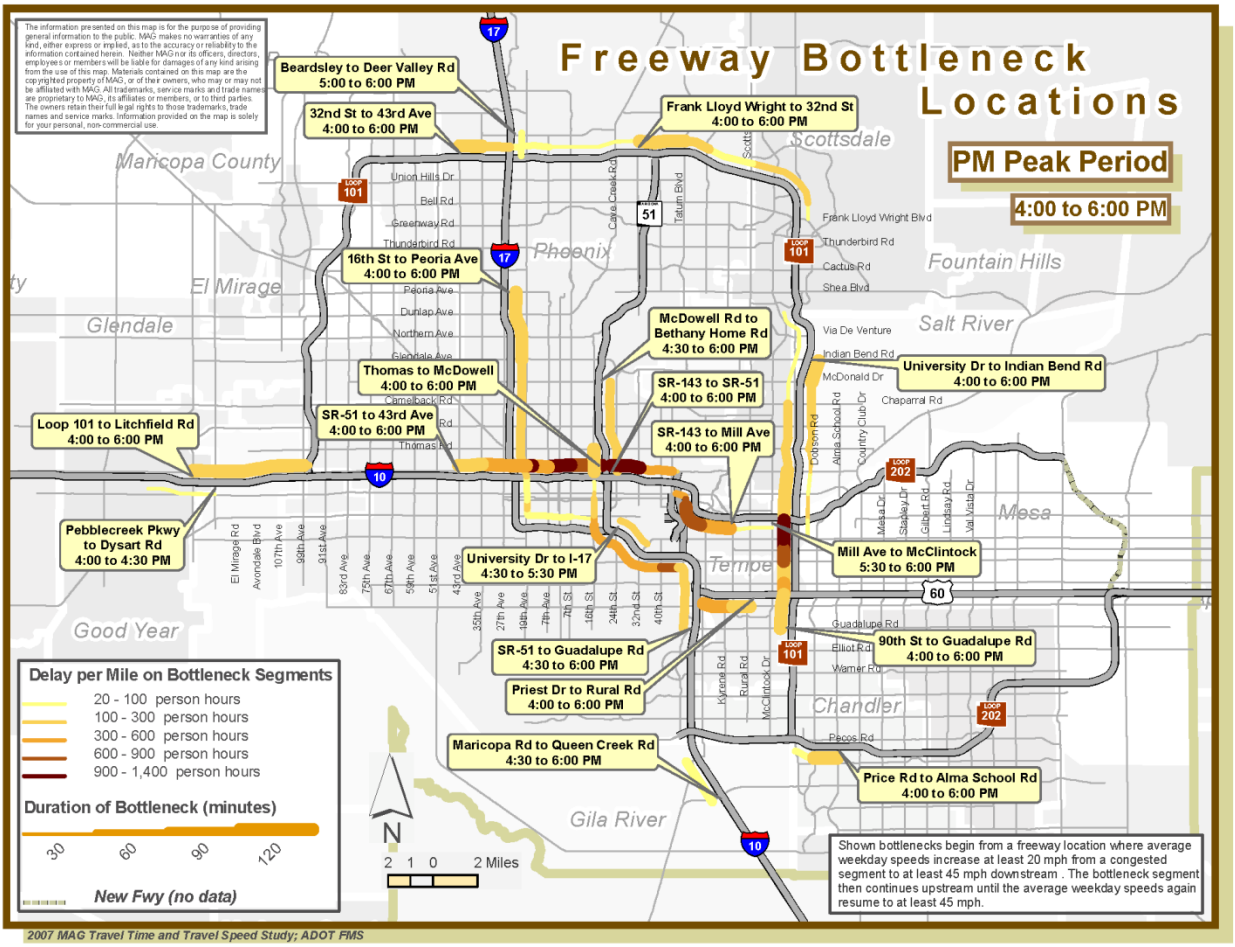
Figure 32: 2007 MAG Freeway Bottleneck Locations – PM Peak Period



5.2 Existing Transit Service Performance

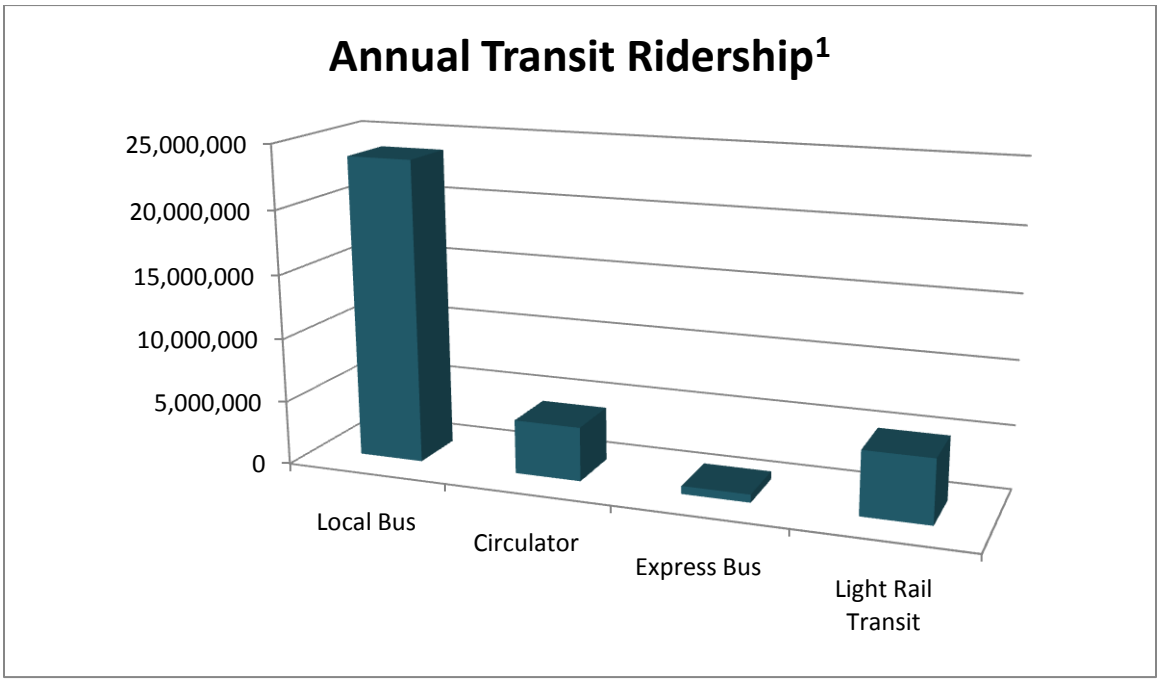
Transit service performance is tracked by the Regional Public Transportation Authority\Valley Metro on a regular basis through monthly and annual performance reports. Information from these reports is aggregates service productivity (ridership) at the route and jurisdiction level. Route segment performance data, other than jurisdiction, and stop level performance data is not available for all routes and stops. Therefore, the transit performance data presented in this report is limited to the route and jurisdiction level.

Annual ridership by mode for fiscal year 2008-2009, the most recent year of complete ridership data, is presented in **Table 10** through **13**. The data presented in the tables are limited to the communities within the study are only. For example, ridership on Southern Avenue (Route 61) is provided for Phoenix and Tempe only; however, ridership statistics for the segment of the route that operates in Mesa is excluded from the summary tables.

Based on Valley Metro's reported ridership data, local fixed route bus service carried more passengers than any other transit mode, followed by light rail, circulator bus and express bus. The data reported for

light rail transit is incomplete as it only represents ridership for half a year (January 2009 – June 2010). Extrapolated to a full year, ridership for light rail transit in Phoenix and Tempe would still be less than fixed route local bus. If compared on a route level basis, light rail does carry more passengers than any other single route.

Figure 33: Annual Study Area Transit Ridership by Mode



Source: Valley Metro Annual Ridership Report for Fiscal Year 2008-2009
[1]Annual ridership for light rail is for January 2009 through June 2009

Overall the local bus routes with the highest ridership in the study area operate within or through the central Phoenix area. These services include Route 19 (19th Ave), Route 17 (McDowell Rd), Route 0 (Central Ave), Route 16 (16th St), and Route 7 (7th Ave). However, several other local bus routes have relatively high ridership, including Route 61 (Southern Ave), Route 45 (Broadway Rd) and Route 77 (Baseline Rd). These three routes show a strong existing demand for east-west local transit service.

While express bus service has the lowest total ridership of any mode in the study area, it is also has the lowest service levels (weekday peak period only) and serves a specific market: downtown Phoenix commuters. Most notable about the express bus service routes is the I-10 East RAPID. This route accounts for more than one-third (37%) of the express route ridership in the service area, despite that there are a total of 11 express bus routes. The I-10 East RAPID route provides direct express bus service primarily using the I-1O HOV lanes between the Pecos Park-and-Ride located in the Ahwatukee Foothills area and downtown Phoenix. Following the I-10 East RAPID route, the three Chandler Express routes (540, 541, and 542) combined account for approximately 24% of the express bus ridership in the study area. These routes provide service between the historic Chandler CBD area and downtown Phoenix utilizing a combination of arterial roadways and freeway HOV lanes.

Table 10: Existing Local Bus Service Performance

Route	Description	Annual Ridership				
		City	Weekday	Saturday	Sunday	Total
0	Central	Phoenix	1,553,689	145,359	97,282	1,796,330
1	Washington/Jefferson	Tempe	54,187	3,022	2,747	59,956
		Phoenix	189,475	18,264	13,320	221,059
		Total	*243,662*	*21,286*	*16,067*	281,015
3	Van Buren	Phoenix	1,517,714	159,139	115,657	1,792,510
7	7th Street	Phoenix	1,407,726	140,203	102,529	1,650,458
8	7th Avenue	Phoenix	827,971	98,213	60,474	986,658
10	Roosevelt/Grant	Phoenix	809,681	96,414	41,688	947,783
12	12th Street	Phoenix	473,934	29,829	26,910	530,673
13	Buckeye	Phoenix	283,936	28,490	20,475	332,901
15	15th Avenue	Phoenix	720,201	87,146	53,943	861,290
16	16th Street	Phoenix	1,348,492	146,766	108,547	1,603,805
17	McDowell	Phoenix	1,881,666	186,804	134,688	2,203,158
19	19th Avenue	Phoenix	2,412,271	222,203	196,420	2,830,894
30	University	Tempe	309,497	32,425	8,434	350,356
		Phoenix	111,221	7,698	3,399	122,318
		Total	*420,718*	*40,123*	*11,833*	472,674
40	Apache/Main St	Tempe	76,623	9,228	7,906	93,757
		Phoenix	29,429	4,764	5,035	39,228
		Total	*106,052*	*13,992*	*12,941*	132,985
44	44th St/Tatum	Tempe	154,834	14,156	9,992	178,982
		Phoenix	574,104	67,789	46,995	688,888
		Total	*728,938*	*81,945*	*56,987*	867,870
45	Broadway	Tempe	353,439	39,772	22,686	415,897
		Phoenix	438,760	44,329	29,644	512,733
		Total	*792,199*	*84,101*	*52,330*	928,630
52	Roeser	Phoenix	248,017	17,817	13,252	279,086
56	Priest Drive	Tempe	404,389	54,967	36,829	496,185
		Phoenix	103,531	14,136	10,812	128,479
		Guadalupe	30,743	5,611	4,045	40,399
		Total	*538,663*	*74,714*	*51,686*	665,063
61	Southern	Tempe	382,800	40,981	28,113	451,894
		Phoenix	578,430	62,199	47,720	688,349
		Total	*961,230*	*103,180*	*75,833*	1,140,243

Route	Description	Annual Ridership				
		City	Weekday	Saturday	Sunday	Total
62	Hardy/Guadalupe	Tempe	370,743	38,081	26,740	435,564
65	Mill/Kyrene	Tempe	206,090	21,957	14,860	242,907
		Chandler	16,636	1,070	1,197	18,903
		Total	*222,726*	*23,027*	*16,057*	261,810
66	Mill/68th Street/Kyrene	Tempe	200,223	25,843	20,959	247,025
70	Glendale/24th Street	Phoenix	1,606,843	169,642	120,411	1,896,896
72	Scottsdale/Rural	Tempe	680,405	75,228	57,244	812,877
		Chandler	135,218	13,322	13,184	161,724
		Total	*815,623*	*88,550*	*70,428*	974,601
76	Miller	Scottsdale	54,835	6,304	3,266	64,405
		Tempe	105,198	10,685	4,732	120,615
		Total	*160,033*	*16,989*	*7,998*	185,020
77	Baseline	Tempe	316,889	43,159	29,218	389,266
		Phoenix	310,642	33,222	22,514	366,378
		Total	*627,531*	*76,381*	*51,732*	755,644
81	Hayden/McClintock	Tempe	493,222	37,925	27,755	558,902
		Chandler	35,159	NA	NA	35,159
		Total	*528,381*	*37,925*	*27,755*	594,061
108	Elliot Rd	Tempe	114,143	9,719	6,728	130,590
		Chandler	23,549	1,826	NA	25,375
		Guadalupe	17,439	1,645	792	19,876
		Total	*155,131*	*13,190*	*7,520*	175,841
156	Chandler Blvd/ Williams Field Rd	Chandler	229,412	27,784	20,201	277,397
		Phoenix	63,741	8,399	6,184	78,324
		Total	*293,153*	*36,183*	*26,385*	355,721
Total			***20,132,492***	***2,094,252***	***1,480,546***	***23,707,290***

Source: Valley Metro Annual Ridership Report for Fiscal Year 2008-2009

Table 11: Existing Circulator Services within the Study Area

Route	City	Annual Ridership			
		Weekday	Saturday	Sunday	Total
DASH[1]	Phoenix	531,250	N/A	N/A	531,250
ALEX	Phoenix	325,498	36,436	29,801	391,735
Orbit - Earth	Tempe	411,451	80,075	64,930	556,456
Orbit - Venus	Tempe	288,155	43,080	43,010	374,245
Orbit - Mercury	Tempe	557,260	64,444	65,305	687,009
Orbit - Mars	Tempe	159,372	22,010	17,988	199,370
Orbit - Jupiter	Tempe	635,964	89,983	76,740	802,687
FLASH[2]	Tempe	687,456	N/A	N/A	687,456
Total		**3,596,406**	**336,028**	**297,774**	**4,230,208**

Source: Valley Metro Annual Ridership Report for Fiscal Year 2008-2009
[1]Includes the Downtown and Government Loops. DASH Downtown was discontinued in July 2010.
[2]Includes FLASH Forward, FLASH Backward, and FLASH University. FLASH University was replaced with FLASH McAllister in July 2010.

Table 12: Existing Express Services within the Study Area

Route	Description	Annual Ridership	
		City	Weekday
511	Tempe/Scottsdale Airpark Express	Chandler	4,805
		Tempe	1,390
		Total	*6,195*
520	Tempe Express	Tempe	20,586
		Phoenix	13,688
		Total	*34,274*
521	Tempe Express	Tempe	33,702
		Phoenix	24,780
		Total	*58,482*
531	Mesa/Gilbert Express	Phoenix	41,540
532	Mesa Express	Tempe	3,959
		Phoenix	18,373
		Total	22,332
533	Mesa Express	Phoenix	48,724
535	Northeast Mesa/Downtown Express	Mesa	15,407
		Phoenix	13,408
		Total	*28,815*
540	Chandler Express	Tempe	8,119
		Chandler	10,867
		Phoenix	33,904
		Total	*52,890*
541	Chandler Express	Chandler	33,434
		Phoenix	45,413
		Total	*78,847*
542	Chandler/Downtown Express	Chandler	11,210
		Phoenix	9,949
		Total	*21,159*
I-10E	RAPID - I-10 East	Phoenix	233,318
Total			**626,576**

Source: Valley Metro Annual Ridership Report for Fiscal Year 2008-2009

Table 13: Existing Light Rail Service within the Study Area

Route		Annual Ridership[1]			
	City	Weekday	Saturday	Sunday	Total
Central Phoenix – East Valley	Phoenix	2,665,283	468,742	341,892	3,475,917
	Tempe	1,152,662	201,902	169,562	1,524,126
	Total	***3,817,945***	***670,644***	***511,454***	**5,000,043**

Source: Valley Metro Annual Ridership Report for Fiscal Year 2008-2009
[1]Annual ridership for light rail is for January through June 2010

5.3 Existing and Projected Travel Demand

An initial review of travel demand was completed to identify general travel patterns between the study area and other areas of the region. In addition, other travel patterns were reviewed to identify where trips to two of the study area's highest demand activity centers are projected to originate from. These activity centers include downtown Phoenix and downtown Tempe\ASU.

5.3.1 Study Area Travel Demand

Trip Destinations
General travel demand in the study area was measured using outputs from the MAG regional travel demand model. Based on the results of the model, presented in **Table 14** and **Figure 34**, the top general destinations for trips originating in the south Tempe, Chandler and Northern Pinal County area include:

- Southeast and east valley areas (Mesa, Gilbert and Pinal County)
- North Tempe (north of Baseline Rd)
- Central Phoenix north area (including Sky Harbor Airport, Uptown Phoenix, and Camelback\Biltmore area)

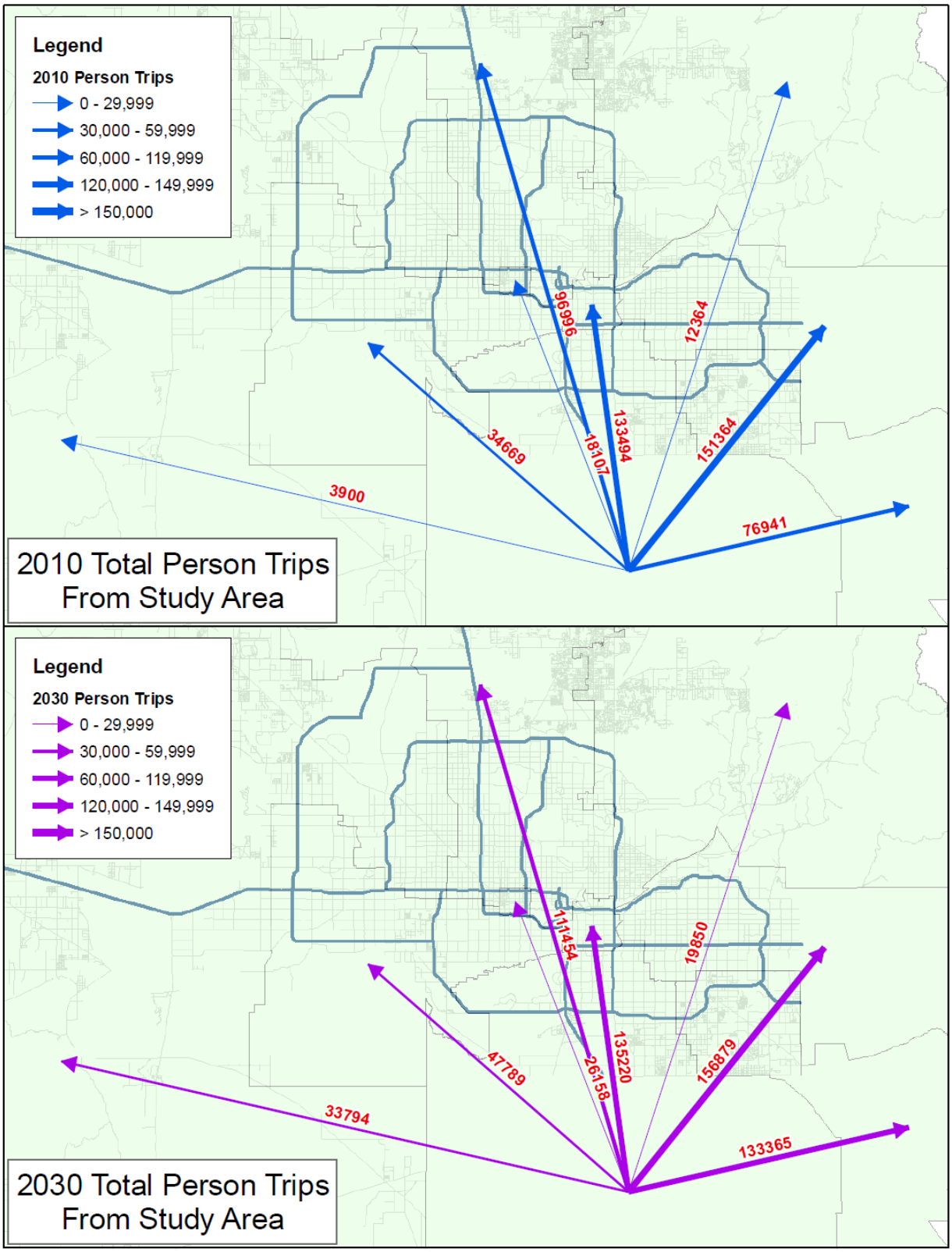
Table 14: 2010 and 2030 Total Study Area Person Trips – Trips from Study Area

Sub-Area	2010 - Percent of Trips	2030 – Percent of Trips
Southeast and East Valley Areas	43%	44%
North Tempe	25%	20%
Central Phoenix North Area	18%	17%
All Other Areas Combined	13%	19%
Total	100%	100%

Source: MAG Travel Demand Model, 2010

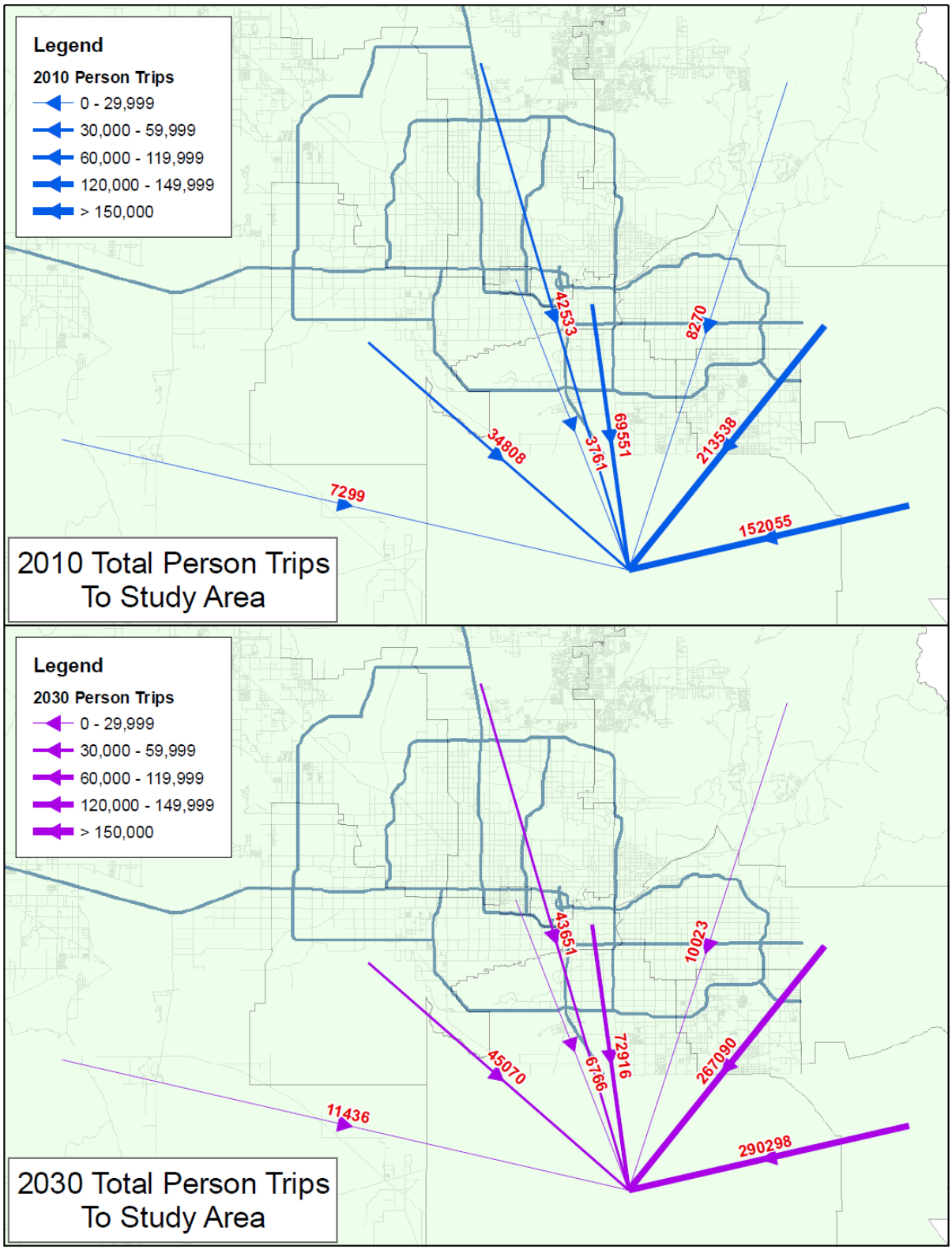
When comparing between 2010 and 2030, there appears to be limited change in the projected travel demand patterns. The highest destinations in 2010 are projected to remain strong destinations in 2030.

Figure 34: 2010 and 2030 Total Study Area Person Trips – Trips from Study Area



Source: MAG Travel Demand Model, 2010

Figure 35: 2010 and 2030 Total Study Area Person Trips – Trips to Study Area



Source: MAG Travel Demand Model, 2010

Trip Origins

From a trip origin perspective, the travel demand pattern is nearly a reverse of the destination patterns. The areas of the region that generate the most trips destined to the south Tempe, Chandler and Northern Pinal County area include:

- Southeast east and east valley area (Mesa, Gilbert and Pinal County)
- North Tempe (north of Baseline Rd)

Trips from the central Phoenix north area, which is considered a leading destination, represents only 6% of the total daily person trip origins. However, it should be noted that a significant number of trips, approximately two-thirds in 2010 and three-quarters in 2030 are originating from the southeast and east valley areas. **Table 15** and **Figure 35** identify the general location of the trip origins (total daily person trips) destined to the south Tempe, Chandler and Northern Pinal County area.

Table 15: 2010 and 2030 Total Study Area Person Trips – Trips to Study Area

Sub-Area	2010 - Percent of Trips	2030 – Percent of Trips
Southeast and East Valley Areas	69%	75%
North Tempe	13%	10%
All Other Areas Combined	18%	16%
Total	100%	100%

Source: MAG Travel Demand Model, 2010

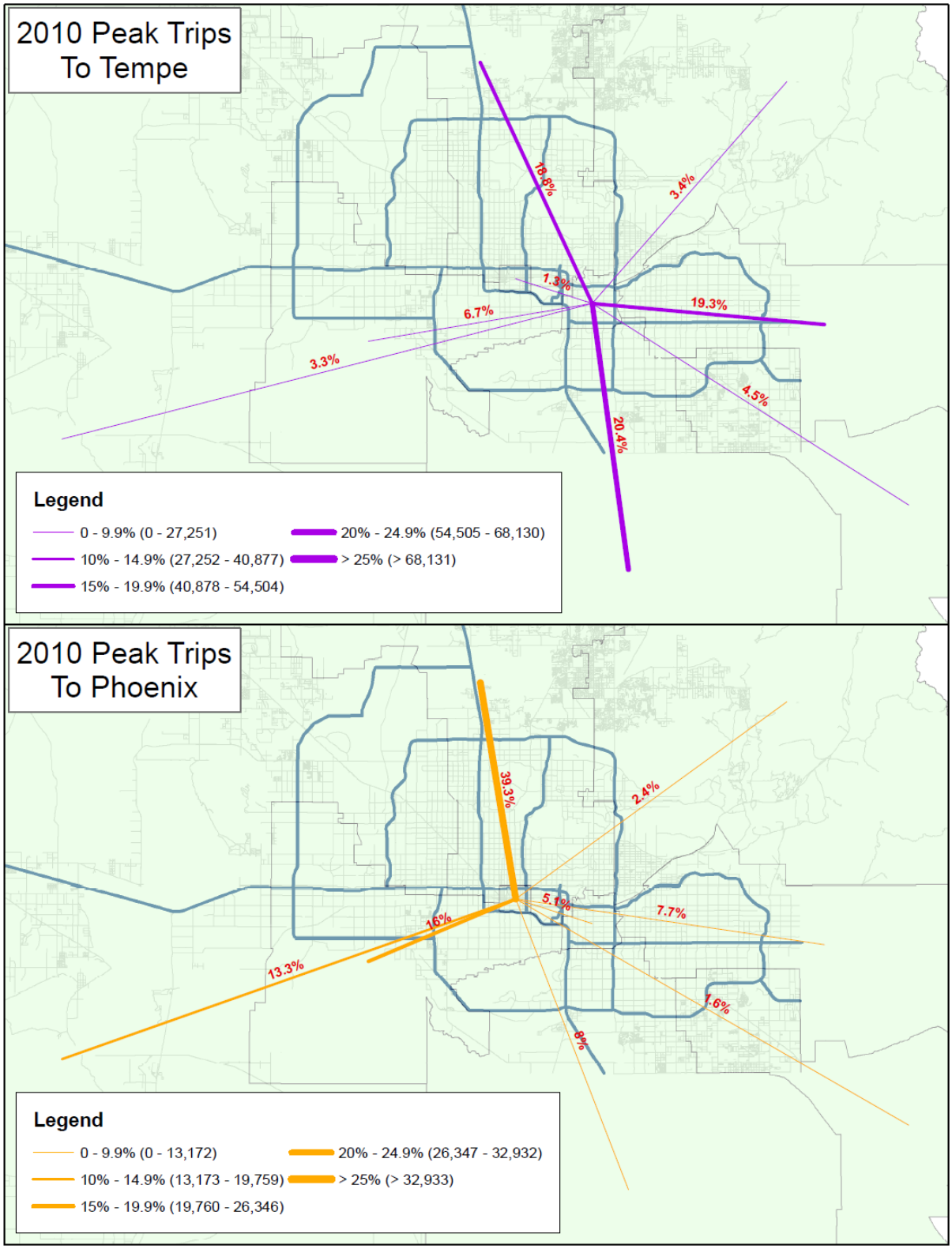
5.3.3 Activity Center Demand

Activity center demand was reviewed for the two most desired activity centers in the study area: downtown Phoenix and downtown Tempe\ASU. This review was completed to identify where trips are originating from for these high demand activity centers and to better understand their potential affects on transportation needs within the study area. **Figures 36** and **37** illustrate the projected peak period trip generation levels from each of the sub-areas defined for travel demand analysis in this study. For the downtown Tempe\ASU area, approximately one-fifth (20.4% in 2010 and 19.5% in 2030) of the peak period trips destined for this area originate from the south Tempe, Chandler and Northern Pinal County area. Other areas that have a high level of trips destined for the downtown Tempe\ASU area include:

- Southeast valley area (Mesa and Apache Junction)
- Central Phoenix north area (including Sky Harbor Airport, Uptown Phoenix, and Camelback\Biltmore area)

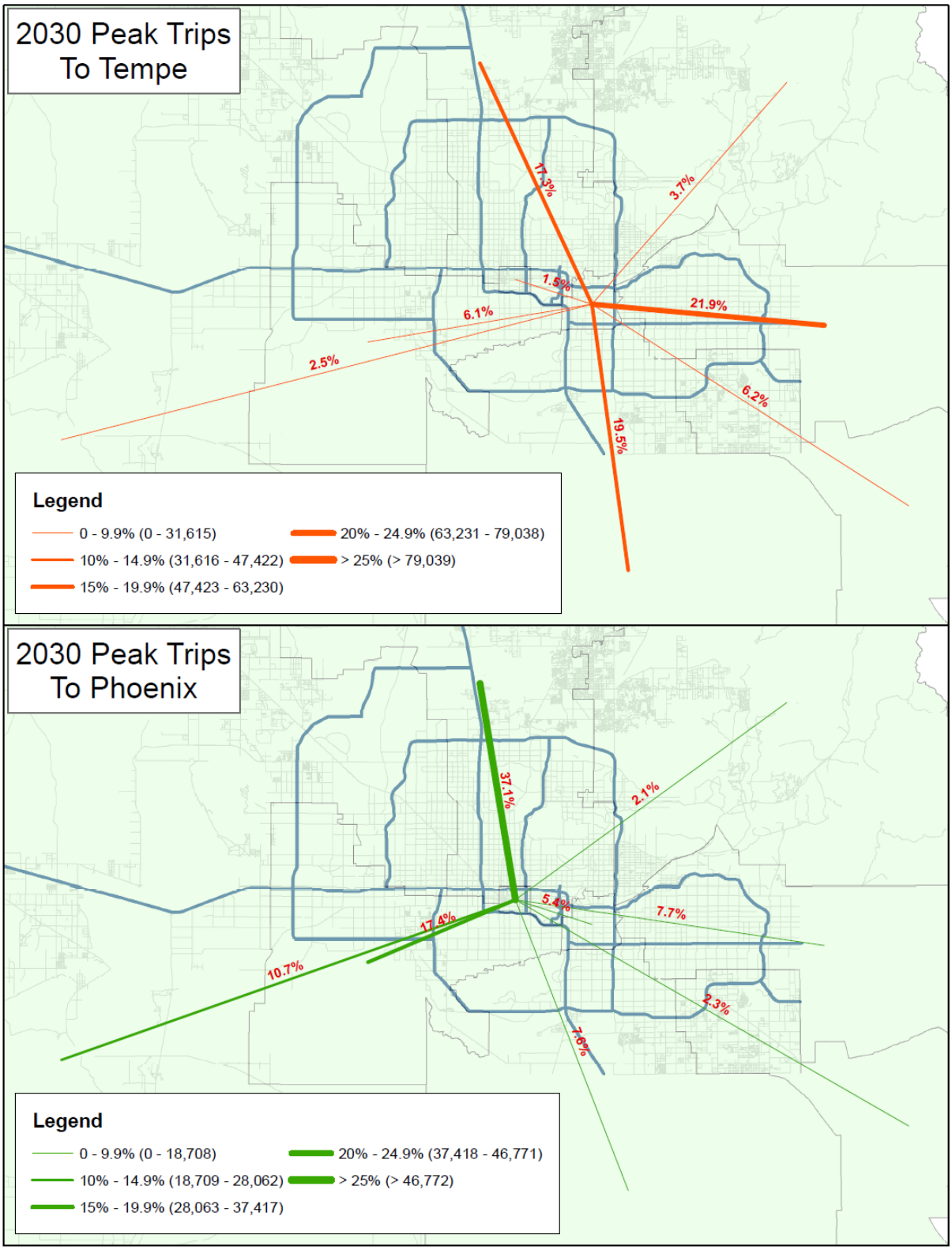
Nearly 40% of the trips destined for the downtown Phoenix area are originating from the Central Phoenix north area in both 2010 and 2030. Trips from the south Tempe, Chandler and Northern Pinal County area only comprise approximately 8% of the trips destined for downtown Phoenix. However, all east valley areas combined (excluding Scottsdale) comprise approximately 20% of the trips.

Figure 36: 2010 Trip Origins Destined to Downtown Phoenix and Downtown Tempe\ASU



Source: MAG Travel Demand Model, 2010

Figure 37: 2030 Trip Origins Destined to Downtown Phoenix and Downtown Tempe\ASU



Source: MAG Travel Demand Model, 2010

6.0 Key Findings

The information documented in this report provides background information essential for understanding existing and planned transportation investments, current performance of the study area's highway, roadway and transit networks and general travel demand patterns. The key findings identified through the background research will help inform the development of new transportation concepts and strategies for improving overall mobility within and through the SE Corridor and adjacent area. The transportation related key findings in the study area include:

Planned Major Transportation Investments

- There are several planned freeway/highway improvements in the study area
  - New SR-202L/South Mountain Freeway
  - Corridor capacity improvements along I-10, from the bridge over the Salt River through the I-10/US-60 system interchange
  - New HOV ramp connections for the I-10/SR-202L and SR-101L/SR-202L system traffic interchanges
  - Additional general purpose and HOV lanes along existing facilities
- Additional arterial roadway improvements are planned in the study area
  - Intersection improvements at Chandler Boulevard and Kyrene Road, and the intersections of Ray Road with Kyrene Road, McClintock Road, and Rural Road
  - New/improved arterial roadway; Avenida Rio Salado between 51st Avenue and 7th Street
- One illustrative roadway project is identified
  - Improve I-10 to a local/express lane configuration between the I-10/SR-51/SR-202L traffic interchange and 3rd Street
- Three new HCT and three new arterial BRT are corridors planned
  - HCT; Tempe South, Phoenix West, and Phoenix Sky Train (Phase 1)
  - BRT; corridors on Scottsdale/Rural Road, South Central Avenue, and Chandler Boulevard
- Three illustrative HCT corridors identified
  - Two potential HCT all day service corridors along Scottsdale/Rural Road and Central Avenue (south of Jefferson Street)
  - One HCT peak period service corridor near the Tempe Kyrene Branch freight rail line
- New local and express bus routes are planned within the study area; however, planned service levels are very modest

Transportation Performance

- Previous studies indicate that every freeway within the Southeast Corridor study area experiences some recurring congestion
- The most significant freeway delays are found on I-10 northbound between Chandler Blvd and US 60 and on US 60 westbound between Mill Avenue and Priest Drive during the AM peak period. During the PM peak period, the most significant bottle necks in the study area are on I-10 eastbound between I-17 and Guadalupe Road and on eastbound US 60 between I-10 and Rural Road

- Slightly higher average speeds are experienced on the HOV facilities than the general freeway lanes during peak hours
- The primary source of delay on the arterial street network is generally from intersections
- Within the study area, local fixed route bus service carried more passengers than any other transit mode, followed by light rail, circulator bus and express bus in Fiscal Year 2009
- The local bus routes with the highest ridership in the study area operate within or through the central Phoenix area; however the south Phoenix and Tempe east-west crosstown routes (Broadway, Southern, and Baseline) have strong existing ridership
- The I-10 East RAPID (Ahwatukee to Downtown Phoenix express) accounts for more than one-third (37%) of the express route ridership in the service area while the three Chandler express routes (540, 541, and 542) account for approximately 24% of the express bus ridership

Travel Demand

- The top general destinations for trips from the south Tempe, Chandler and Northern Pinal County area include:
  - Southeast and east valley areas (Mesa, Gilbert and Pinal County)
  - North Tempe (north of Baseline Rd)
  - Central Phoenix north area (including Sky Harbor Airport, Uptown Phoenix, and Camelback\Biltmore area)
- The areas of the region that generate the most trips destined to the south Tempe, Chandler and Northern Pinal County area include:
  - Southeast east and east valley area (Mesa, Gilbert and Pinal County)
  - North Tempe (north of Baseline Rd)
- Trips from the central Phoenix north area, which is considered a leading destination, represents only 6% of the total daily person trips; however, it should be noted that a significant number of trips, approximately two-thirds in 2010 and three-quarters in 2030, are from the southeast and east valley areas
- Approximately one-fifth (20.4% in 2010 and 19.5% in 2030) of the peak period trips destined for the downtown Tempe\ASU area are from the south Tempe, Chandler and Northern Pinal County area. Other areas that have a high level of trips destined for the downtown Tempe\ASU area include:
  - Southeast valley area (Mesa and Apache Junction)
  - Central Phoenix north area (including Sky Harbor Airport, Uptown Phoenix, and Camelback\Biltmore area)
- Nearly 40% of the trips destined for the downtown Phoenix area are from the Central Phoenix north area in both 2010 and 2030. Trips from the south Tempe, Chandler and Northern Pinal County area only comprise approximately 8% of the trips to downtown Phoenix; however, all east valley areas combined (excluding Scottsdale) comprise approximately 20% of the trips